LITERATURE OF MANUFACTURERS

Catalogues, bulletins and other direct advertising material recently issued.

Manufacturers are requested to send copies of new trade literature promptly to Electric Refrigeration News.

Champion

Heavy weight Champion compressors for multiple installation are described in a folder issued by the Champion Electric Co., Chicago, Ill. Photographs of two compressors and four cooling coils with ice cube capacities ranging from 36 to 90 cubes and having from two to five trays, are contained in the folder. Specifications and construction of the compressors are included, with a discussion of the advantages of the multiple system.

Day-Fan

"Motors" is the title of a catalog presented by the Day-Fan Electric Co., Dayton, Ohio, which covers the complete line of Day-Fan electric motors for domestic appliances. Cross sectional views show the construction of various types of motors. A dimension diagram shows the type of motor designed for electric refrigeration needs. Power-line connections are discussed with the aid of wiring diagrams and the care of the motor is briefly treated. A section of the catalog is devoted to questions and answers in regard to single phase repulsion induction, split phase and direct current type motors.

Icelect

Compressor units for domestic and commercial refrigerators are illustrated and described in a loose-leaf catalog offered by the Icelect Corp., Omaha, Neb. Four models of the reciprocating type with two cylinders and equipped with motors ranging in size from 1-6 to ½ h. p. are shown.

Ice-O-Matic

Two booklets received from the Williams Oil-O-Matic Heating Corp., Bloomington, Ill., describe the Ice-O-Matic unit. One contains views of several cabinets and a compressor and a general discussion of the unit and the advantages of the use of methyl chloride as a refrigerant. The other presents the advantages of the unit to the housewife.

Kelvinator

"Bigger Profits for the Florist" is the title of a pamphlet issued by the Kelvinator Corp., Detroit, Mich., in which it gives the ten advantages of Kelvinator electric refrigeration to florists. Six types of cooling units and eight styles of compressors with motors ranging in size from 1-6 to 1½ h. p. are shown. In addition, a number of photographs show installations in florist shops.

Merchant & Evans

M & E electric refrigerators are described in two folders sent in by the Merchant & Evans Co., Philadelphia, Pa. Views of eight cabinets, four compressors and several water coolers are included in the folders. The multiple system hook-up is also discussed and a number of photographs show buildings in the Philadelphia territory in which M & E equipment has been installed. Another folder contains reproductions of a number of letters from users.

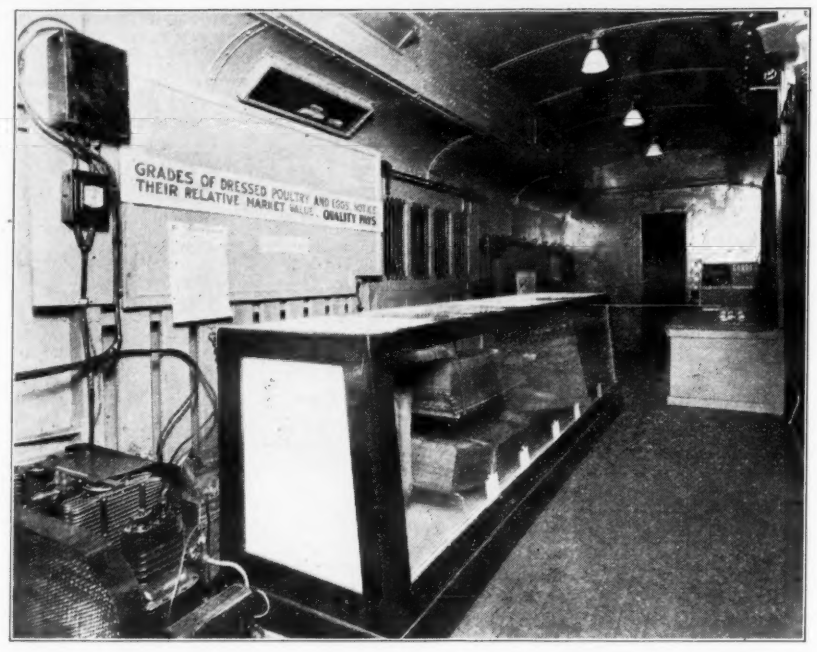
Universal Cooler

A broadside describing the new Universal multiple control expansion valve has been received from the Universal Cooler Corp., Detroit, Mich. A diagram explains how the valve operates.

Wiremold

A fifty-eight page catatog published by the American Wiremold Co., Hartford, Conn., describes Wiremold conduit and fittings. Views of both are shown and diagrams illustrate the use of each style. Methods of passing conduit around beams and supporting conduit and fittings are discussed briefly. The Wiremold bender, enamel and wire-duct loom are also covered in the catalog.

McCray Case Cooled by Frigidaire, Used In Agricultural Demonstration Train



THE latter part of November, the New York Central Railroad, in co-operation with the University of Illinois, the Illinois Agricultural Association, the Produce Producers, the Agricultural Press and others, operated an agricultural demonstration train over their lines in Southern Illinois, the purpose of which was educational. This train was known as the Poultry Business Management Train. A model 3012 McCray was used, cooled by a Frigidaire unit.

The railroad company was exceptionally well pleased with the service they got out of this case and R. J. Plaster, agricultural agent, wrote the McCray company in part as follows.

"The big See-All Display Case was the source of much interest on part of our visitors, many of whom had never seen an electric refrigerated case like it. Our dressed poultry displays stood up in excellent condition and looked just as well on the last day of the trip as on the first day. We were able to maintain a temperature without variation of more than 1 degree any time during the week."

Zanesville Engineering

Circular "A" issued by the Zanesville Engineering Corp., Zanesville, Ohio, announces a new Zero commercial refrigerating unit. A photograph of a methyl chloride compressor is contained in the circular, with specifications for the unit.

REQUESTS FOR INFORMATION

Readers who can assist in furnishing correct answers to inquiries or who can supply additional information are invited to address Electric Refrigeration News, referring to the query number.

Hydrolene Cement

Query No. 164—An electric refrigerator manufacturer inquires, "Can you obtain for us the names of companies who manufacture and put up in small packages a hydrolene cement to be used by service men to close the opening in a display case or refrigerator around the tubing after the installation?"

An Interesting Inquiry From Paris

Query No. 165—A concern in Paris, France, would like to get in touch with manufacturers interested in the following question:

"We should be glad to know whether you build an apparatus for cooling apartments by means of a central apparatus situated either in the cellar or on the ground floor of a building, but not by direct expansion of gas in apartments, refrigerators, boxes.

"Also whether you build an apparatus which gives out heat in the winter and cold in the summer actuated by hot water or cold brine alternatively or cold wind—hot wind.

"Do you also sell a cooling apparatus which supplies cold to private homes through distributing companies whose works are in the suburbs or outskirts of the town?

"In the affirmative, we should be much obliged if you would kindly let us have your catalogue together with prices, in order that we may study the possibility of purchasing such machines for a trial installation, which might eventually lead to the purchase of a greater number of machines."

Who Makes the "Keep Kool" Machine?

Query No. 166—A reader in New York City writes: "Would you be kind enough to give me the name of the manufacturer of Keep Kool ice machines."

Sabeco Metal

Query No. 167—A subscriber in Switzerland writes, "Can you furnish me with the name of the manufacturer of Sabeco metal."

W. M. Baxter

Query No. 168—Wanted, the adddress of W. M. Baxter, formerly with the U. S. Foil Company, Louisville, Ky.

Dealership Wanted

Query No. 169—A farm lighting plant dealer in a rural district of Virginia requests a list of manufacturers offering agencies for household and commercial refrigerating equipment.

ELECTRIC REFRIGERATION NEWS will forward literature if enclosed within a stamped envelope ready for addressing and mailing.

German Representation

Query No. 170—A representative of a firm in Munich, Germany, asks "Could you tell me which leading companies in the electric refrigeration field might be interested in representation in Germany? This is of course with exception of the companies who have their own sales branches there."

"PLEASE CHANGE MY ADDRESS"

Recent movements of subscribers as indicated by changes in mailing addresses.

Bill, A. P., from 2244 Roswell, Kansas City, Kan., to Apt. 302 Gerre, 2730 Troost Ave., Kansas City, Mo.

Brash, J. E., from 1413 E. 50th St., to c/o Allerton Club, 701 N. Michigan Blvd., Chicago, Ill.

Edwards, T. S., from 909 Santa Fe Ave., Los Angeles, Calif., to 1910 Boren Ave., Seattle, Wash.

Goodale, Laurence A., from 744 E. 80th St., to 8425 Drexel Ave., Chicago, Ill.

Hale, R. W., from c/o The Frederick Raff Co., 164 State St., Hartford, Conn., to c/o Buckley & Scott, Inc., 137 Broad St., Providence, R. I.

Halvorson, H. P., from c/o Eastern Service Refrig. Co., 250 Stuart St., Boston, Mass., to 177 Merrimack St., Lowell, Mass.

Huffman, A. L., from 648 83rd St., Brooklyn, N. Y., to c/o Mountain Lake, Marshalls Creek, Pa.

Moister, Geo. W., from 1910 Boren Ave., Seattle, Wash., to c/o Kelvinator, Inc., 494 Peachtree St., Atlanta, Ga.

Panush, E., from 3737 Boston Blvd., to 3002 Calvert, Detroit, Mich.

Petley, B., from c/o Petley Carver Corp., 1935 8th Ave., Los Angeles, Calif., to 393 Downer Pl., Aurora, Ill.

Smauder, Walter G., from c/o Southern Ice & Utilities Co., 520 Santa Fe Bldg., Dallas, Tex., to c/o Commonwealth Utilities Corp., Liberty Central Trust Bldg., St. Louis, Mo.

Vogt, C. C., from 3407 Prospect Ave., to 1812 Euclid Ave., Cleveland, O.

Willis, R. J., from 1550 E. Broad St., Apt. 302, Columbus, O., to 1845 Emerson Ave., Apt. 16, Dayton, O.

Wookey, W. P., from c/o Rice & Kelly, 285 North St., to 21½ Melville St., Pittsfield, Mass.

Subscription Order

ELECTRIC REFRIGERATION NEWS,
550 MACCABEES BUILDING, DETROIT, MICH.

Please enter subscription to Electric Refrigeration News.

United States and Possessions:

☐ $2.00 per year. ☐ Three years for $5.00.

All other Countries:

☐ $2.25 per year. ☐ Two years for $4.00.

I am enclosing payment in the form of

☐ Check ☐ P. O. Order ☐ Cash

Name.....

Street Address.....

City and State.....

Remarks:.....

NEW DEALERS & DISTRIBUTORS

Recent appointments announced by manufacturers and new sales outlets reported from the field.

Copeland

Distributors:

Phelps Dodge Mercantile Co., Bisbee, Ariz.
Corpus Christi Hardware Co., Corpus Christi, Tex.
Walter Connally & Co., Tyler, Tex.
Gilmour Empie Co., Jacksonville, Fla.
M. A. Kropp & Son, Marietta, Ohio.
Morris Hardware Co., McConnelsville, Ohio.
B. L. Johnson, Allentown, Pa.

Dealers:

Fox Motor Service, Harrison City, Pa.
Glen Lyon Electrical & Radio, Glen Lyon, Pa.
Saltsburg Mine Supply Co., Saltsburg, Pa.
Steinman Radio & Electric Co., 5815 Forbes St., Pittsburgh, Pa.
Ross Electric Co., 4830 Liberty Ave., Pittsburgh, Pa.
Shadyside Electric Co., 5408 Walnut St., Pittsburgh, Pa.
Sunshine Electric Co., Inc., 209 Market St., Pittsburgh, Pa.
F. Bowman & Son, Allentown, Pa.
Hill Electric Co., Bethlehem, Pa.
Art Furniture Co., 5037-39 Union Blvd., St. Louis, Mo.
Pardue Hardware & Paint Co., St. Louis, Mo.
Scott Electric Appliance Co., 3541 S. Grand, St. Louis, Mo.
Roger E. Jarvis, 3783 Florissant, St. Louis, Mo.
Shockley Tire Co., 601 St. Louis Ave., Springfield, Mo.
R. K. Griep, Joplin, Mo.
Super Radio Shop, Poplar Bluffs, Mo.
W. Cafalla, 1900 N. Grand Blvd., St. Louis, Mo.
Strain Maytag Co., Cape Girardeau, Mo.
Cowan Battery Service, Sidney, N. Y.
M. E. Garrison, Kingston, N. Y.
Stanley Hubbard, Riverhead, L. I., N. Y.
Maurice Steisel, Glen Cove, N. Y.
Spear & Co., 22 W. 34th St., New York, N. Y.
Hill Refrigerator Co., 620 Atlantic Ave., Brooklyn, N. Y.
Royal Refrigerator Co., 281 Powell St., Brooklyn, N. Y.
Parkinson & Irvine, 169 Seventh Ave., Brooklyn, N. Y.
Dan Dalton, Wichita, Kans.
Wilson Hardware Co., Eldorado, Kans.
C. T. Laird, Potwin, Kans.
McGregor Hardware Co., Winfield, Kans.
Todd Furniture Co., Arkansas City, Kans.
Paul L. Routt, Lawrenceburg, Ky.
Stanley M. Young, North Middletown, Ky.
M. H. Moise Co., 1324 Starks Bldg., Louisville, Ky.
Sharp Radio Co., Richmond, Ky.
Standard Furnace & Range Co., Louisville, Ky.
Roy Bennett, Quincy, Ill.
Sullivan Electric Co., Herrin, Ill.
J. W. Waddell, Pana, Ill.
C. M. Sneed, McLeansboro, Ill.
Comer Hardware Co., 2147 75th St., Chicago, Ill.
Crandall & Sanders, Kingfisher, Okla.
Electric Service & Sales Co., Okmulgee, Okla.
C. J. Defehr, Corn, Okla.
Osage Electric Co., Ponca City, Okla.
Joe Rumple, Bremond and Calvert, Tex.
Jacksonville Plumbing and Heating Co., Jacksonville, Tex.
Bain Hardware Co., Kenedy, Tex.
W. H. Moore, Ridgewood, N. J.
J. R. Skinner, Washington, N. J.
Tri-County Oil Burner Co., Inc., Bogata, N. J.
McGrew Pharmacy, Canal Fulton, Ohio.
Pendleton & Beane, Concord, N. H.
L. C. Johnson, Tuskegee, Ala.
John Thompson Grocery Co., 1121 15th St., Denver, Colo.

THE CONDENSER

ADVERTISING RATE fifty cents per line (this column only).

SPECIAL RATE if paid in advance—Positions Wanted—fifty words or less, one insertion $2.00, additional words four cents each. Three insertions $5.00, additional words ten cents each. All other classifications—fifty words or less, one insertion $3.00, additional words six cents each. Three insertions $8.00, additional words sixteen cents each.

POSITIONS WANTED

Refrigeration engineer, with eight years' experience in electric refrigeration, includes research engineering, production and service. Graduate Electric and Mechanical Engineer. Have held major executive positions with three of the largest manufacturers. Available when greater opportunity is offered. Box No. 119.

Sales Engineer. Specialized in water cooling sales, service, manufacture, and engineering. Experienced in commercial refrigeration in general. Desires change with greater opportunity for advancement with manufacturer or large distributor. Single man with college education. Able to handle salesmen and manage department. Box No. 132.

FOR SALE

A manufacturer of Electric Refrigeration of a well known make is in a position to furnish complete units or any parts, but specializes on compressors for domestic machines. Our engineering department is at the command of our customers. Box 127.

For Sale. Kelvinator franchise for three counties in central Pennsylvania. Owner desires to engage in manufacturing business. This is worth investigation. Box 131.

Refrigeration Service Co. Inc.
SERVICE SPECIALISTS
Installations, Alterations, Repairs,
Inspection, Reconditioning, Maintenance
New York City Tel.: Chickering 0460
Nights, Sundays or Holidays
Susquehanna 4500
Office and Works 449 West 42nd St.
Warehouse 281 11th Ave.

20%
of all retail sales result from effective displays.

Trutulife Foods
selected for proper shelf arrangement complete a refrigerator display appealingly and permanently.
Price list sent on request

Trutulife Wax Products Co.
27 Erie St., Milwaukee, Wis.

Wanted–Sales Manager

Manufacturer of Electric Refrigeration in large western city has opening for General Sales Manager. This position open only to one who has held similar position or has been near enough to the top to be conversant with the duties and responsibilities of General Sales Manager.

All replies considered confidential. Our own organization has been informed of this advertisement. State age, full experience and minimum salary to start in first letter to receive consideration. Please do not reply unless you can measure up.

Address Box 133, Electric Refrigeration News

Mail This Coupon

Utilities Engineering Institute,
Dept. 41, 3120 N. Clark St., Chicago, Ill.
Without obligation, send me your free book "Opportunities In Electric Refrigeration" and full information on your home training course.
Name .....
Address .....
City .....
State .....
Position .....

Get Full Details of This **FREE BOOK**

New Home Training In ELECTRIC REFRIGERATION

EVERY man in the refrigeration industry—manufacturer or mechanic—salesman or dealer—is concerned with this important announcement. For it deals with a vital problem of the industry—scientific knowledge of the manufacture, installation, operation and servicing of domestic and commercial Mechanical Refrigerators.

There is now available a home training in refrigeration so practical, thorough and simplified that it is being used and praised by the leaders in the field. Kelvinator has sponsored this training for its entire service organization. The quotation of Col. Frank E. Smith, Servel's president, speaks for itself.

PRAISED BY SERVEL
Col. Frank E. Smith, Servel's President, writes, "I am surprised at the thoroughness with which you have gone into this matter. Your Institute will be of great assistance to our industry, and it will be a pleasure to cooperate with you in this work."

Find out about this valuable and interesting training by mailing the coupon above—without obligation. Also learn about our special proposition to manufacturers and distributors. Utilities Engineering Institute, Dept. 41, 3120 North Clark Street, Chicago, Ill.

Mail Coupon Above

ELECTRIC REFRIGERATION NEWS

The business newspaper of the refrigeration industry

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STAGE ALL SET FOR COPELAND CONCLAVE FEBRUARY 5 AND 6

Invitations Have Been Issued to 2,000 Distributors and Dealers

DISTRIBUTORS and dealers from 2,000 points in the United States and Canada have been invited to Detroit to attend the annual convention of the Copeland Products, Inc., scheduled for Feb. 5 and 6. From acceptances already received a record attendance is expected, according to W. D. McElhinny, vice-president in charge of sales.

Headquarters of the convention will be at the Statler hotel, but the sessions will be conducted at the Players' Club, 3321 East Jefferson avenue, where a stage with all necessary fittings is available for demonstrations and displays. A large auditorium is available at this club for the main sessions of the convention while the playroom will be used for the presentation of dramatized sales talks.

William Robert Wilson Will Outline Plans for 1929.

William Robert Wilson, chairman of the board, will welcome the Copeland men with an address reviewing Copeland's growth in the past few years and outlining the plans for 1929. Under the general direction of Mr. Wilson, Copeland Products, Inc., has grown from a small factory with a limited field force to a large manufacturing plant, producing a complete line of electric refrigeration equipment and with more than 2,000 sales outlets in the United States and Canada, as well as representation in the foreign field through the H. M. Robins Company, of Detroit.

On the first day the Copeland line for 1929 will be introduced, presenting for the first time the complete commercial line which covers the entire field, as well as the domestic line. In the commercial field will be presented Copeland cooled florist refrigerators, water coolers for office buildings, coolers for cafeterias and restaurants, Copeland cooled display counters and walk-in boxes, ice cream cabinets, Copeland cooled meat counters, milk cooling cabinets, zero tubes, cooling coils and all types of condensing units from the small single-cylinder to the big two-cylinder models both air and water cooled.

W. D. McElhinny Will Present Sales Program for Coming Year.

The convention will be in charge of W. D. McElhinny, vice-president in charge of sales, who will present Copeland's comprehensive sales program for the new year.

Copeland's extensive advertising program for 1929 will be outlined by A. M. Taylor, director of advertising and sales promotion, with the use of charts and sample specimens of copy. Copeland's program this year will include use of national magazine, newspaper and trade paper space, as well as bill boards and direct mail material.

C. W. Hadden, of the executive staff, will explain Copeland's policies for the year while C. S. Smith, comptroller, will explain many of the financial angles dealing with discounts and rates. Glenn Muffly, chief engineer of the Copeland Products, Inc., will speak on the engineering features of the Copeland line and explain many details of installation and manufacturing, while Edward Barger, in charge of the service department, will take up the problems relating to service.

A feature of the program this year, as arranged by Mr. McElhinny, will be a demonstration of a telephone canvass as utilized by several of Copeland's leading distributors and dealers. For this actual telephones will be used with models presenting the sales talk through the phone and other models posing as the customer on the other end of the line.

Special buses will be provided to convey the men from the hotel to the Players' Club as well as to the factory for an inspection of the plant on the second day. Since the last convention, a year ago, the plant has taken over a large building adjoining the original factory, with large shipping facilities and considerable space for manufacturing. Here, too, are housed many of the offices of the company.

A banquet at the Statler will wind up the convention on Tuesday night. At this banquet special souvenirs have been provided in the form of a large 16 x 36-inch bird's-eye picture of the factory.

SPECIAL ATTENTION

A discussion of some of the problems of air circulation in commercial refrigerators by G. S. Bataille of the Harry L. Hussman Refrigerator Co., St. Louis, Mo., on page 6 of this issue, will be of particular interest.

Modern Refrigeration in Tavern Where Dickens, Yates, Tennyson and Goldsmith Used to Dine

Frigidaire installation in the ancient wine cellar of Ye Olde Cock Inn, Fleet Street, London. Notice the rare collection of drinking mugs suspended from the upper floor beams. The building is about four hundred years old. See article on page 2 by Dorothy Dignam, European correspondent.

FIRST OF 10 FRIGIDAIRE MEETINGS TO BE HELD AT CLEVELAND FEBRUARY 15

8,000 Expected to Attend Series of Regional Sessions

Over 1,100 Frigidaire salesmen from Ohio, Pennsylvania, Michigan and New York will attend the regional convention of Frigidaire Corp., to be held in Cleveland on Feb. 15. Headed by E. G. Biechler, president and general manager, a group of 20 officials from Dayton will attend the convention. Sales plans and policies for 1929, and the progress made during 1928 will be discussed at the meeting.

Other regional conventions will be held at Atlanta, Memphis, Fort Worth, Chicago, Boston, New York, San Francisco and London, Ont., Canada. It is estimated that 8,000 Frigidaire salesmen will attend the ten regional meetings.

K. M. SCHAEFER NAMED NORGE SALES MANAGER

Norge Corporation has appointed K. M. Schaefer general sales manager, effective Jan. 1, following the resignation of L. W. Ward.

Mr. Schaefer was formerly with Kelvinator, and before that he was engaged in the manufacturing and selling ends of the automobile industry.

Under Mr. Schaefer's direction, the Norge Corporation is mapping out an aggressive selling campaign for 1929. Special emphasis will be placed on the development of the Norge Detroit branch. During 1928 this branch made an enviable record, particularly in apartment house installation. It is expected to better this record in 1929.

ELECTRO-KOLD SALES JUMP 110 PER CENT IN 1928

Electro-Kold sales for 1928 exceed sales of 1927 by 110%. Quota for 1928 was set at double that of 1927 and this quota was exceeded by 10%. December 1928 sales tripled those of December 1927, exceeding the quota by 51%. The statement is made by E. S. Matthews, sales manager.

Electro-Kold Corp., in Spokane, Wash., specializes in Pacific Coast distribution but shipments in 1928 included twenty-two states and eleven foreign countries.

COMING FEATURES

Special attention is given in this issue to the subject of refrigeration equipment for the meat dealer. Photographs of equipment in use and feature articles dealing with commercial equipment will be found in the pages which follow.

Similarly the next issue, that of January 30, will emphasize cooling equipment for the grocery store. Control devices will be illustrated and described as the feature product.

Restaurant applications will receive special attention in the February 13 issue. The product feature of that number will be electric wiring. Such supplies as conduit, armored cable and safety switches will be presented.

In the February 27 issue, electric refrigeration for the florist will be discussed. The product section will take up the various types of refrigerants.

On March 13 comes the New Equipment Number, in which manufacturers will present their new lines of household machines and cabinets.

Manufacturers are requested to supply interesting editorial material appropriate for these issues.

PHILADELPHIA A. S. R. E. STARTS ACTIVE YEAR WITH MEETING, JAN. 18

The Philadelphia section of the American Society of Refrigerating Engineers will hold a meeting Friday, Jan. 18. It will be in the nature of an organization meeting. A dinner will be followed by a technical session.

H. I. Lewis, acting secretary, says that present indications point to an active year for the section, which will result in a material benefit to the entire industry in that vicinity.

DAY-FAN AWARDED MOTOR CONTRACTS BY COPELAND AND KELVINATOR FOR 1929

Two contracts by which the major portion of the electric motor requirements for 1929 of the Kelvinator Corp. and Copeland Products, Inc., both of Detroit, will be furnished by the Day-Fan Electric Co., Dayton, Ohio, were recently closed by Frank H. Johnston, assistant general sales manager, and Otis F. Lam, in charge of motor sales in Detroit.

Officials of the Dayton firm state that the closing of these two contracts will mean immediate expansion of production to a volume three times as great as any previous peak output of motors by the company. Within 60 days the factory expects to be completing and shipping between 1,000 and 1,500 motors a day of the fractional horsepower size.

This increased production will necessitate the doubling of the number of persons on the payroll of the plant. At present the company has in operation a school in which women are being taught the process of winding armatures. New equipment is being installed to speed output and the layout of the factory is being arranged to permit expansion.

REFRIGERATION SAFETY DISCUSSED BY CHICAGO A. S. R. E. THIS EVENING

The Chicago section of the American Society of Refrigerating Engineers meets tonight in joint session with the National Association of Practical Refrigerating Engineers, in the Auditorium of the Engineering Building, Wacker Drive and Wells St., Chicago. The subject of refrigeration safety will head the principal discussion.

The Chicago section of A. S. R. E. will participate in the Mid-West Power Engineering Conference to be held at the Palmer House, Chicago, Feb. 12 to 18. At this meeting two papers on refrigeration and one on ventilation are scheduled.

N. Y. EDISON CHANGES POLICY; WILL RETAIL ALL APPLIANCES NOW

Was One of Last Non-Merchandising Utilities Serving Large Cities.

THE New York Edison Co. will enter the field of merchandising domestic electrical appliances. The announcement by Matthew S. Sloan, president of the New York Edison Co., though preceded by preliminary statements, was made at a monthly luncheon meeting of the New York Electrical League, on Jan. 9.

Previously the organization has restricted its activity to demonstration and display of appliances, but has left the retailing in other hands. With the display has been extensive advertising of the use of electrical appliances in the home, and co-operation with the department store, the independent dealer and the specialty shop has been generous.

This reversing of policy follows close upon the reorganization in which Mr. Sloan has become the president of five electric utilities of New York City. This leaves only Cleveland and Louisville as outstanding exponents of the policy of the utility company not merchandising.

Sloan Says Change Will be Desirable for All Elements.

"One of the changes being brought about will be of direct interest to this gathering," said Mr. Sloan before the group which is largely composed of electrical manufacturers, jobbers, contractors, and dealers. "We intend in the future to sell electrical appliances at the showrooms of The New York Edison Company just as they are being sold by other companies in the system. As you know, heretofore The New York Edison Co. has not been really in the merchandising end of the business, neither has it been actually and completely out of it. On a careful survey of the situation it seemed to us anomalous and one to be cleared up. We are confident that the change we are making will produce a situation which will be clean-cut and much more fair and desirable all around for all elements in the business than the previous situation.

"The thought behind the old situation was that the utility was interested in the use of current by its customers and that by refraining from selling appliances itself it left equal opportunity and an open field to all venders. As a matter of fact, it didn't work out that way, and you know it didn't as well as I do. All dealers and all contractors did not get equal advantages from this practice, and I doubt if the company's refraining from actual sale of appliances was of real benefit to anybody.

"In entering the merchandising field the company will enter it honestly, honorably and fairly. Perhaps that doesn't really need to be said, but I want to enter it on the records and to say it emphatically.

Makes Plea for Industry Organization in New York.

"We shall not cut prices or do anything else, directly or indirectly, to place any contractor or dealer under unfair competition. We shall endeavor to stimulate this branch of our business by advertising as we do other branches of our business. I believe this advertising will be of such character as will result in sales of electric merchandise not by us alone but also by others who carry such goods. It it does, we shall be glad to feel that our new course is of benefit and profit to others in the industry as well as to ourselves. Our interest as a public utility supplying electrical service is and always will remain primarily in the increased use of current. Our efforts in merchandising of apparatus will be directed and shaped to that end. The more current-using devices sold—by whoever makes the sales—the more electricity will be used and the more value the public will get out of electric service."

Mr. Sloan ended his talk with a plea for a stronger organization of those interested in industry. He said: "I have another thought I'd like to leave with you. It is much in my mind that this organization should be bigger and broader and more truly representative of the great electrical industry in New York City than it now is. I say that with all due respect for the New York Electrical League and other associations of our industry and for the good work they are doing in their respective fields. New York is the metropolis of the nation, its outstanding commercial and financial center.

"We should have here a central organization including all branches of the electrical industry, call it the Electrical League, the Electric Club, or what you will, which would be as outstanding in the industry of the nation as our city is in its commercial and financial affairs. This organization should be representative of all interested in furthering the use of electricity and the

(Concluded on Page 2, Column 3)

Historic London Tavern Learns the Benefits of Electric Refrigeration

Ancient Wine Cellar the Home of New Frigidaire

By Dorothy Dignam, European Correspondent.

"AND so to the Cock Inn for dinner where we did see their new contrivance for keeping cold the game and fish. . ."

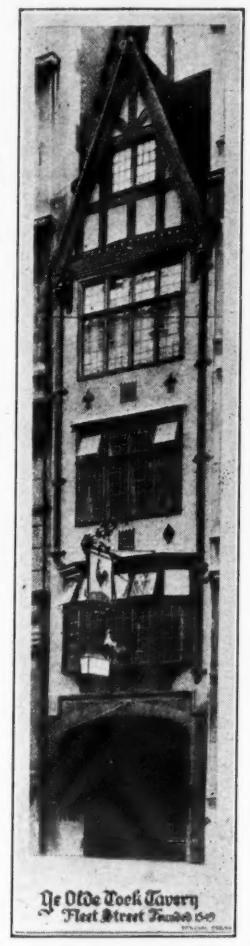
So would Samuel Pepys pen today if he were still patronizing Ye Olde Cock Tavern in Fleet Street, London. For this ancient inn, housed in the original 400-year-old timbered building—one of the few to escape the London fire—has recently installed the newest type Frigidaire.

And Pepys wasn't the only notable to patronize the inn. Every floorboard creaks with spirit-foosteps of celebrities.

Here Doctor Johnson wandered in, for a change from his usual table d'hote at the Cheshire Cheese. Oliver Goldsmith was a hearty customer—when Johnson gave him the price of the meal. Nell Gwynne—the King's "pretty ladye"—was said to have enjoyed both the board and the bar. Sheridan and Garrick represented the theatrical world, and later Dickens, Yates and Tennyson were frequent guests.

And now, down in the oak-beamed cellar hung with drinking cups that date back to Stuart days, and surrounded by wine kegs, stands an ultra-modern electric refrigerator.

The cabinet, finished in polished oak, measures more than six feet high, seven feet wide and four feet deep and has an internal capacity of 150 cubic feet. It is cooled by two Model 18-T. F. cooling coils operated from a ½ H. P. Model N. water cooled compressor. The installation was made by Frigidaire Limited of London.



The cooling coils, placed in the center of the large cabinet, will produce forty-seven pounds of ice at one time, or sufficient to cool a thousand drinks. This ice is used at the bar for cooling the drinks as they are served so that storage space in the refrigerator may be devoted to preserving food supplies.

On the shelves to the left the game is kept and the rolls of plump sausages. You always find sausage wherever you find fowl in the English menu, roast chicken and browned sausages being a particularly mouth-watering favorite.

On the other side of the cabinet the cured meats are hung—that sweet all-lean English bacon and the tender pink York hams. In this compartment the fish is also kept—most of it in barrels with blocks of ice to supply the needed moisture in the dry-cold of an electric refrigerator.

The low cost of operation is another interesting feature of this installation. The consumption of electricity runs only about 2-3 of a unit a day, costing approximately 12c in this district of London. The company reports that the machine has required no servicing of any kind since the day of its installation and will only be oiled twice a year, as usual.

NEW YORK EDISON TO RETAIL APPLIANCES

(Concluded from Page 1, Column 5)

advancement of the electrical art, manufacturers, jobbers, dealers, contractors, utility organizations, holding companies. It should be an organization which, by such true and wide representation of the industry, by the number of its members and by its character and dignity, would have a commanding position and influence in our own industry and rank with the leaders of trade organizations representing other industries.

"I believe, in short, that we as an industry in this city have in that respect an opportunity of which full advantage has not yet been taken. I'm so much impressed by this view that I pledge the support of the companies I represent to any effort to create such an organization because I believe it will be beneficial to all branches of our industry and will benefit the public we work for in our various capacities."

SAFETY MEETING ATTENDED BY SERVEL WORKMEN, JAN. 10

More than 100 workmen of Servel, Inc., Evansville, Ind., attended a good fellowship dinner and safety meeting held at the Vendome hotel in Evansville on January 10. This meeting was called for the purpose of promoting the safety of the individual workman in the plant.

E. F. Theis, factory manager, presided as toastmaster and outlined the accident prevention program of Servel, Inc. E. R. Burns, plant engineer, spoke on "Facts and Figures", while F. P. Nehrbas, vice president and general manager, talked on "Co-operation and Organization" and Dr. Roy Johnson, medical advisor, spoke on "Health."

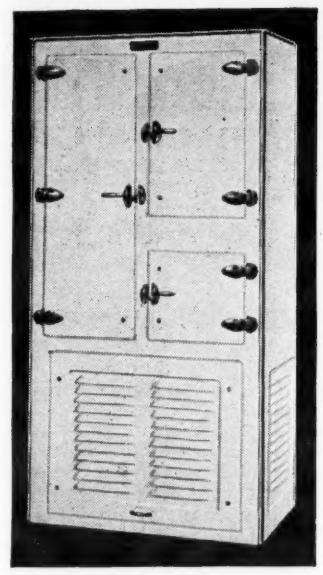
The Bohn Franchise

For those dealers who appreciate the merchandising possibilities of a nationally known, and very complete, line of refrigerators.

During thirty-two years of quality manufacturing, the BOHN organization has been responsible for over eighty per cent of the scientific advance in refrigerator construction.

BOHN was the first to build an all-porcelain refrigerator and is today the world's largest manufacturer of these beautiful and practical cabinets.

A large production enables us to offer the lowest prices in the company's history.



All-porcelain base cabinet models in 5-6-7-9 and 12 cubic feet.

Nothing finer can be said of a refrigerator than "It was built by BOHN."

BOHN REFRIGERATOR COMPANY
SAINT PAUL, MINNESOTA

NEW YORK CHICAGO BOSTON

LIPMAN MEN OPEN 4-DAY MEETING AT BELOIT, WIS., TODAY

Edgar Guest Will Entertain With His Poems At Dinner Thursday Evening

The General Refrigeration Co., Beloit, Wis., manufacturers of Lipman refrigerating machines, open a four-day distributors' convention at Beloit today. The session opened with registration at the Hilton hotel followed by a luncheon. The afternoon was devoted to an inspection of the factory and a special demonstration in the laboratory. Dinner at the Hilton hotel was followed by an entertainment feature by Axel Christensen, rag time pianist and comic reader.

F. E. Denison, Beloit, will open tomorrow's session with a talk on "Product—Design and Construction." Following, a talk on "Low Side—re Coil Design" will be given by L. T. Bray, Beloit. "Installations—Layout and Execution" is to be discussed by Ira J. Lounsbury, Madison, followed by a talk on "Dairies and Milk Cooling," by W. S. Ireland, Birmingham. F. H. Rayfield, Atlanta, will close the morning session with "Bottling Plant Refrigeration."

The afternoon session will be opened, following luncheon, with a talk on "Water Cooling" by E. K. Mitchell, Lexington, South Carolina. C. E. Blue, Detroit, will talk on "Restaurant Refrigeration." "Florist Refrigeration" will be discussed by E. A. Daniels, Chicago, followed by W. G. Smith, Memphis, Tenn., speaking on "Hotel and Club Refrigeration." E. G. Reynolds, New York, will talk on "Soda Fountain Refrigeration" and F. T. Francis, Buffalo, will discuss "Application of Larger Machines in General." The afternoon session, which will be followed by a dinner, will be closed by C. Sowers, San Francisco, who will speak on "Fishing Boat Refrigeration." Edgar Guest, famous poet, will be the feature speaker at the dinner.

The Friday meeting will be opened with a discussion of "Grocery and Chain Store Business," by H. R. Brinkerhoff, Cleveland, and W. G. Smith, Memphis. "More Effective Utilization of District Sales Managers, and More Intensive Field Coverage by Distributors," will be discussed by C. A. Pearson, New York. R. C. Follett, Kansas City, will talk on "Taylor Freezer Business and Its Influence on Refrigeration."

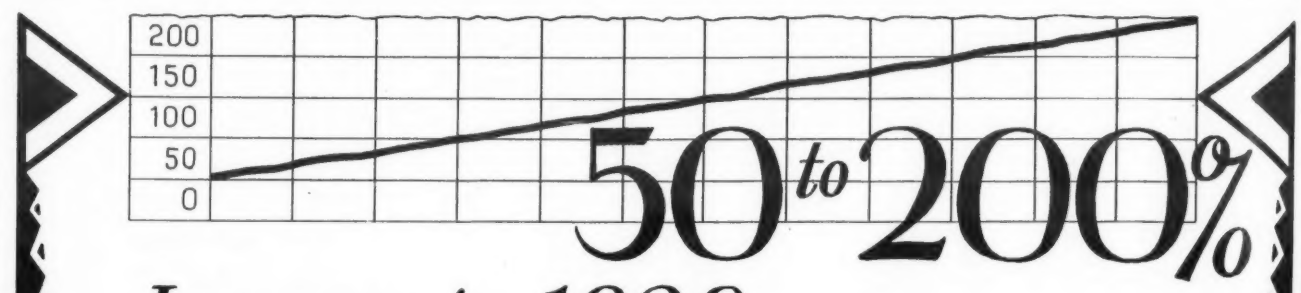
Following a luncheon, A. M. Samp, Beloit, will talk on "The Engineers' Manual and Its Use." "Advertising" will be discussed by W. C. Moore, Beloit. C. B. Coombs, Louisville, Ky., will talk on "Lipman Machines vs. Competition." "Sales Promotion in General" will be discussed by W. S. Ireland, and "Contracts—Accounts—Collections—Getting the Money" by J. J. Tyndal, Beloit.

A banquet will close the day. Informal conferences will be held during Saturday morning and the convention will adjourn at noon.

WHICH CAME FIRST, THE UNIT BELOW THE BOX, OR ABOVE THE BOX, IN DOMESTIC REFRIGERATION?

Author collecting information regarding early domestic refrigeration developments desires pictures of units made prior to 1913 or data on such installations. Suitable payment will be made for material used and photographs will be returned if desired. So far developments with units above the box are in the majority. Let us know of early use of units below the box.

Address Author, Electric Refrigeration News,
550 Maccabees Bldg., Detroit, Michigan.

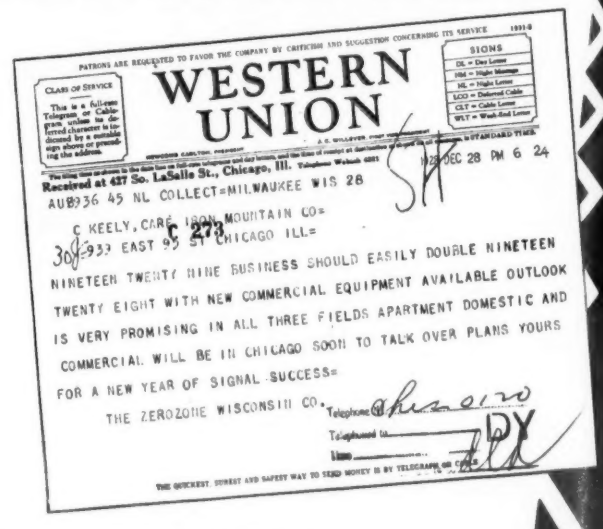


50 to 200%

Increase in 1929 ~ ~ ~ ~

Say ZEROZONE *Distributors*

Hundreds of telegrams like this predict a greater than ever increase in ZEROZONE sales. These men know why 1929 will prove ZEROZONE SUPERIORITY.


WESTERN UNION

Received at 427 So. LaSalle St., Chicago, Ill.

AUB936 45 NL COLLECT=MILWAUKEE WIS 28

C KEELY, CARE IRON MOUNTAIN CO=

927 EAST 95 ST CHICAGO ILL=

NINETEEN TWENTY NINE BUSINESS SHOULD EASILY DOUBLE NINETEEN TWENTY EIGHT WITH NEW COMMERCIAL EQUIPMENT AVAILABLE OUTLOOK IS VERY PROMISING IN ALL THREE FIELDS APARTMENT DOMESTIC AND COMMERCIAL WILL BE IN CHICAGO SOON TO TALK OVER PLANS YOURS FOR A NEW YEAR OF SIGNAL SUCCESS=

THE ZEROZONE WISCONSIN CO.

Read What They Say

Iron Mountian Co.
Outlook for 1929 on Zerozone equipment shows possibilities of 100% sales increase.
Elin Appliance Co.
Newark, N. J.

Iron Mountain Co.
Prospects for sales in our territory next year very bright. Expect large increase over this year.
Tri-State Electric Co.
Sioux Falls, S. D.

Iron Mountain Co.
Prospects next year look good for 50% increase.
Milton Rogers & Sons Co.
Omaha, Nebr.

Iron Mountain Co.
We feel that 1928 business is a "drop in the bucket" to what we are going to do in 1929.
Zerozone St. Louis Co.
St. Louis, Mo.

Iron Mountain Co.
Expect to double our sales next year.
Leverett & Wyman, Inc.
Houston, Tex.

Iron Mountain Co.
Survey of our prospects should increase business about 50%.
G. E. Meyer & Son.
South Bend, Ind.

Iron Mountain Co.
1929 Zerozone sales expected to be 200% better than last year. Will have 15 more associate dealers. Your wonderful commercial line a big help.
Curtis & Company.
Dubuque, Ia.

Iron Mountain Co.
We have determined on 100% increase in 1929. Firmly believe future effort will justify this expectation.
Pacific Zerozone Co.
Los Angeles, Calif.

Iron Mountain Co.
Prestige and confidence established through installations should make a 50% increase or better this coming year.
Bomar-Summers Hdw. Co.
Louisville, Ky.

Iron Mountain Co.
Expect to double our Zerozone sales in 1929.
Electric Home Co.
Erie, Pa.

Iron Mountain Co.
We are looking for at least 50% more business next year. Our new Wheeling show-room should help.
Scott Lumber Co.
Wheeling, W. Va.

Iron Mountain Co.
Business is good. Will increase domestic 50% — commercial and apartment house 100%. Our program is definitely prepared for 1929.
Carnie-Goudie Mfg. Co.
Kansas City, Mo.

There are still a few select territories open for live distributors.

Zerozone
Lifetime Refrigeration

IRON MOUNTAIN CO. 927 East 95th. St., CHICAGO

EACH SUCCESSIVE YEAR in Copeland's history has recorded a substantial gain in sales—*but watch Copeland in 1929!* Each successive year has found Copeland occupying a more prominent position in the electric refrigeration industry—*but watch Copeland in 1929!* Each year has witnessed a sound and steady increase in the Copeland distributing organization; each year has supplied the Copeland distributing organization with better, more readily salable merchandise; each year has brought greater profits to all Copeland distributors and dealers; *but watch Copeland in 1929!* For Copeland, in keeping with the progressive policy which has brought the company to a front rank in the industry, is now ready to announce a line of even greater attractiveness to buyers of domestic, multiple and commercial electric refrigeration. And so we say to the industry and to the distributing field—*watch Copeland in 1929!*

COPELAND, 630 LYCASTE AVE., DETROIT, MICHIGAN

Copeland's Greatest Sales Convention: Detroit, Michigan, February 5th and 6th

Copeland DEPENDABLE ELECTRIC REFRIGERATION

Kelvinator Talks to the Butcher In His Own Language

JOHN M. NOVITSKIE
GROCERIES AND MEATS
2434 N. Main Ave.
Bell Phone
Scranton, Pa.
May 1st 1928
Smith Hardy Co. (Kelvinator Distributors)
Scranton Pa
Address
Gentlemen
My total cost for operation of Kelvinator-Rizer for a year is $137.04
One years saving with Kelvinator is $346.56
Dam using figures from 1927 because that was my last fuel year to use ice.
I am very much pleased with Kelvinator-Rizer Electric Refrigeration
Yours truly
J. M. Novitskie
$72
-17.13
$54.87
Here's a market that bought about 8 tons of ice a month at $9.00 a ton, his ice cost ---------- $72.00
He bought a Kelvinator and his electric bill averaged ---------- $17.13
He saved each month ---------- $54.87
In a few months the Kelvinator had paid for itself!
And he saved on trimmings. he kept his meat better, and increased his sales.
You Can Own a Kelvinator for a little down and it will soon pay for itself!
Our expert will tell you how Kelvinator will cost you less!
Kelvinator
Electric Refrigeration

Three pieces from a commercial campaign designed to present the Kelvinator story to the butcher in a simple, yet effective way, are reproduced here. Realizing that the meat market owner is flooded with a continual stream of lavish advertising material, Kelvinator decided to go to the other extreme and talk to the butcher in his own language.

Accordingly, the first piece is printed on a torn piece of butcher's wrapping paper. The message is written in crayon pencil and gets the economy idea over at the start. This piece, when received by the butcher, has a crayon note on the outside reading, "Figure it out for yourself!"

Piece number two is a jumbo sales slip on which a butcher tells what he thinks of Kelvinator. This attention getting piece carries a message that means money to the meat merchant. The slip is folded in the middle and carries the crayon notation on the outside, "From one market man to another!"

The third piece shown here is an eight-page booklet carrying the story of Kelvinator economy and advantages in a simple, straight-forward and convincing manner. It is designed to be handed to the prospect by the salesman.

PACIFIC PR. & LT. CO. PLANS TO SELL 800 G. E. MACHINES IN 1929

The merchandising department of the Pacific Power & Light Co., Portland, Oregon, has set a quota of 800 General Electric refrigerators with an estimated value of $240,000 as the goal for 1929. The quota for all merchandise sales for this year has been set at a $1,000,000 and throughout the year major and minor sales activities have been planned for each month.

Three months, April, June and August, will be devoted to the sale of General Electric refrigerators, three to electric ranges, two and a half to washers and ironers, two and one half to radios, and one month to vacuum cleaners.

SERVEL SERVICE MEN ATTEND CONVENTION AT EVANSVILLE

Servel, Inc., Evansville, Ind., manufacturers of Servel and Electrolux refrigerators, held a national convention for Servel service men at the Hotel McCurdy in Evansville, Jan. 6-9.

Delegates to the convention were addressed by executives and departmental heads of the company.

Delegates to the convention had access to the laboratories and engineering departments and an inspection and explanation of the details and manufacture of Servel and Electrolux units was arranged on the program.

FIRST SILICA GEL CAR WITH FISH EXHIBITED IN SPOKANE

Fourteen tons of Nordic fillet shipped from the fisheries along the Atlantic coast were recently received at Spokane, Wash., in a car refrigerated by the silica gel process. This car was the first of its type to arrive at Spokane and attracted considerable attention while on exhibition there.

New Servel Building Under Way

Concrete foundations have been completed by the M. J. Hoffman Construction Co., of Evansville, Ind., for the new building addition to the Servel plant.

WAGNER ANNOUNCES A NEW RUBBER MOUNTED REFRIGERATION MOTOR

Wagner Electric Corporation of St. Louis, Mo., announces a repulsion-induction non-radio interfering, rubber-mounted motor—a new development in refrigeration motor design, designed especially for the electric refrigeration industry.

The motor proper is completely insulated from the supporting cradle-shaped base by means of rubber bushing, effecting a quiet motor suited to the needs of the electric refrigeration industry. Notwithstanding

the use of rubber to absorb the minimum amount of vibration produced in the motor, the entire outfit is practically rigid, and shaft alignment is in no way endangered, it is claimed. Moreover, the new type of mounting has been effected without a change in overall length and width dimensions.

The motor proper has also undergone alterations to further improve quietness and electrical performance.

The motor is of the brush-lifting type, the brushes being lifted off the commutator as soon as the rotor attains operating speed. This feature insures quietness in operation and prolongs the life of commutator and brushes.

In all, the new Wagner rubber-mounted motor is the quietest repulsion-induction refrigeration motor available today, is non-radio interfering, and exceptionally efficient and long-lived.

Wins Frigidaire in Quilt Contest

A Frigidaire was recently awarded to Mrs. Joe Vane, of Pysht, Wash., as first prize in a bird quilt contest held this month at Seattle.

G. E. DISTRIBUTOR AT BILLINGS SETS UP A BOGIE OF 3500 MACHINES FOR THIS YEAR

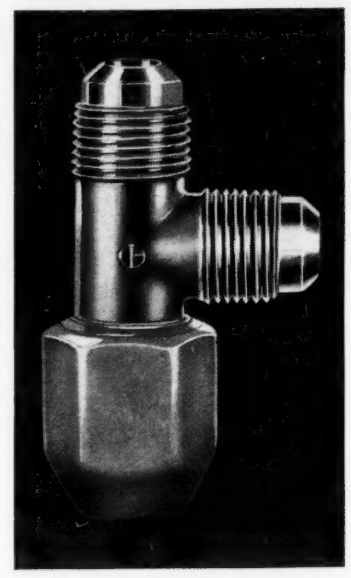
The Montana Power Co., Butte, has placed an order with the F. B. Connelly Co., Billings, Mont., for seventeen General Electric refrigerators and water coolers to be installed in the quarters and community buildings of the new hydro-electric plant now in the course of construction at Rainbow, Mont.

"Nearly twelve hundred General Electric Refrigerators have been installed in Montana and northern Wyoming homes by the F. B. Connelly Co. during the past year," Kenneth A. Connelly, sales manager, said, "and our goal for 1929, is the installation of 3,500 General Electric refrigerators in homes and commercial establishments in this district. An appropriation of $38,000 has been made for local advertising and sales promotion activities within the state of Montana and the northern Wyoming territory."

WESTINGHOUSE ADDS SPACE FOR PRODUCTION OF MOTORS

Additional factory space for the production of small motors for electric refrigerators and other purposes by the Westinghouse Electric & Manufacturing Co. at its plant in East Springfield, Mass., will be available as a result of the erection of a new building there this winter. The new building, for which Bernard H. Prack of Pittsburg, Pa., is the architect, is to be started immediately and completed in April. It will be a one-story structure of brick, steel and concrete. The erection of this large unit will immediately release plant space, hitherto used for radio, for the expansion of small motors production.

Air fans in the new Holland tunnel at New York change the air 42 times every hour.



Any combination of tube-ends and pipe thread-ends can be furnished. All standard sizes, and many "specials," in stock for immediate shipment.

Catalog R-30 mailed upon request.

Forged *for* Strength!

Commonwealth refrigeration fittings are made exclusively from brass forgings and brass rod. The extremely compact grain structure and great tensile strength thus obtained, together with accurately machined threads and seats, insure a tight, seep-proof joint for the life of the installation.

Eighteen years of experience, unusual plant facilities, and a reputation for products of more than usual accuracy—these are Commonwealth's qualifications!

Inquiries Will Receive Prompt Attention

Commonwealth Brass Corporation
5781-5835 Commonwealth Ave.
Detroit

COMMONWEALTH BRASS FITTINGS

Lipman ELECTRIC REFRIGERATION

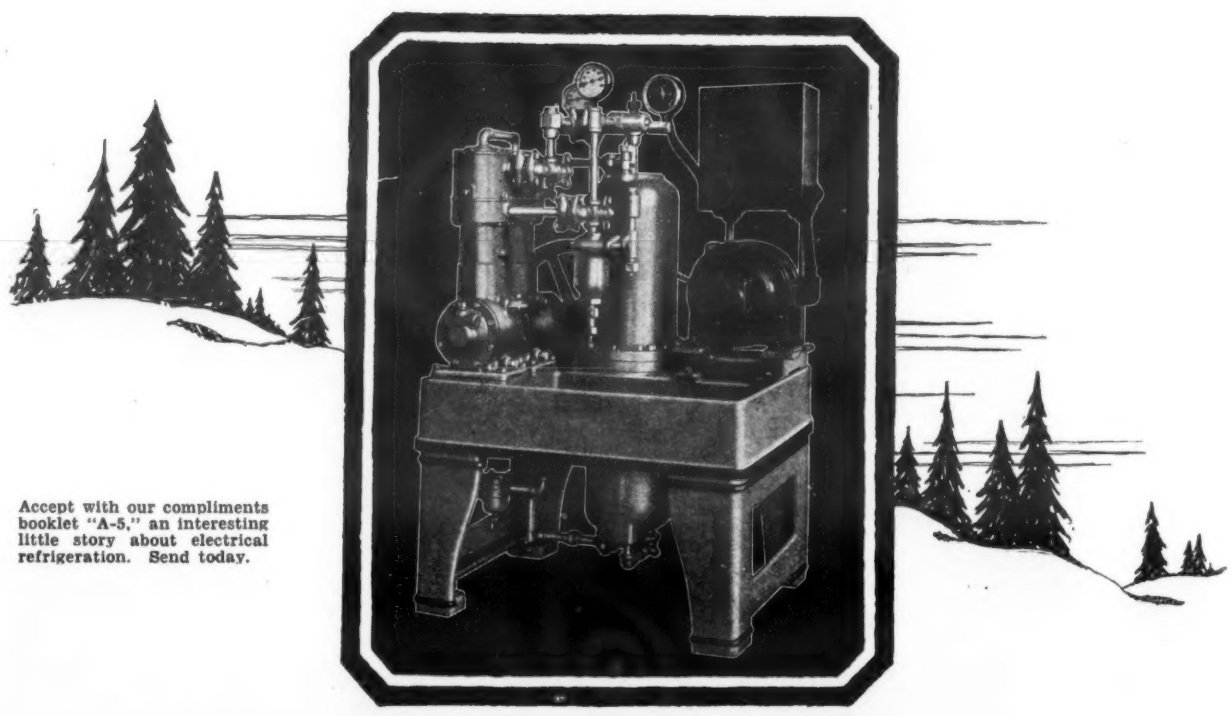
BUILT TO A RESULT .....NOT TO A PRICE

The Lipman ideal is **result,** not price. Ever-increasing Lipman popularity in all fields where refrigeration is employed **proves** that this policy is sound.

Buyers of refrigeration seek a result. And they pay for it. Yet the cost of that result is often judged on an inaccurate basis. Those who buy on first cost alone, are considering only part of the story. Cost of operation is the true measure of value.

After purchase, initial cost rapidly fades into relative unimportance and operating cost moves into the circle of attention that it justly deserves. Judged on this accurate measure of value, the Lipman produces perfect cold at a lower cost—regardless of your present method of refrigeration.

An appraisal of your refrigeration needs by a trained Lipman engineer will cost you nothing—on the contrary, it will mean dollars in your pocket. Write, wire or phone today for the name of the Lipman engineer nearest you. This service is free. There will be no obligation!



Accept with our compliments booklet "A-5," an interesting little story about electrical refrigeration. Send today.

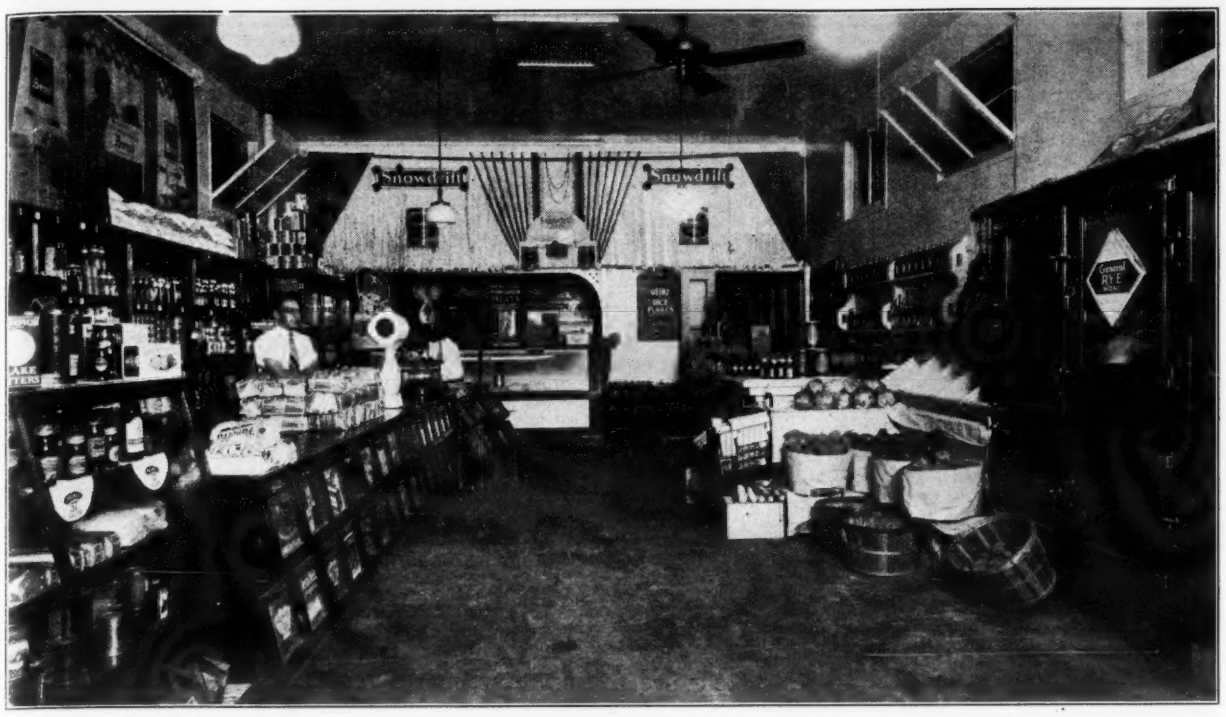
General Refrigeration Co. - - Beloit, Wisconsin

( ) Send Booklet "A-5" ( ) Send Engineer's name

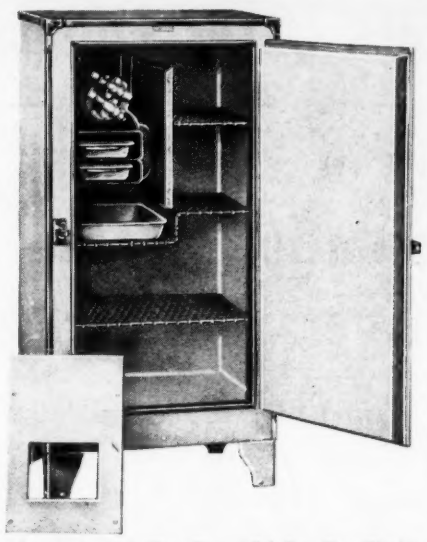
Name..... Firm Name.....

Address..... City and State.....

Servel Distributor Makes Complete Installation In New Orleans Market



The Colombia Market, 7222 Spruce Street, New Orleans, La., is equipped with three Servel compressors—two 20-A units and one, 100-A unit. These refrigerate a vegetable box and a grocery box each measuring 85" x 30" x 75"; also a meat cooler 12' x 12' x 12'. The installation was made by the A. Baldwin & Company, Inc., New Orleans, Servel distributors. See story on page 18.



No. 521—5.2 Cu. Ft. 6½ Sq. Ft. Shelf Space. Removable Front Baffle. Porcelain Drip Pan. 22½" wide, 45" high, 17½" deep.

Crystal

Apartment Refrigerator CABINETS

have made good and are daily showing their superiorities in thousands of apartments with all types of ice machines.

Don't risk the reputation of your machine by any old thing for a cabinet. Crystal cabinets, scientifically constructed—handsome in appearance—add to the good name of your equipment

All Steel—Cork Insulated—Duco Finish

Special non-rusting, galvanized sheet steel. Walls packed solid with Armstrong's 8/20 pure ground cork. Outside finished in white lacquer—*or jade green, deep ivory or turquoise blue to harmonize with colorful kitchens.* Inside baked enamel. Edges and corners protected by polished aluminum. Special sizes to meet any requirement. Ask for details.

CRYSTAL REFRIGERATOR CO. FREMONT NEBRASKA

18 Years' Experience Making Steel Refrigerators

NAVY REFRIGERATES GREAT SUPPLIES OF PERISHABLE FOODS

Supply Depot Buys $8,000,000 Worth of Food Annually

TIME was when the fare of a sailor had little varieties, but the modern gob of the U. S. Navy expects to have fresh food and plenty of it no matter how long his ship is away from port. He gets it, too, thanks to the refrigeration facilities on board and also because of the great Naval Supply Depots which are always ready to restock the supply ships, battleships and all other naval crafts.

One of the finest refrigeration and cold storage plants in the country is that at the Norfolk Naval Base, Hampton Roads, Virginia, where 11,000,000 pounds of refrigerated food may be preserved continually. Fifty tons of ice may be made daily and 30 carloads of eggs have been stored at one time in the Spring of the year.

A look into the great meat coolers, where rail after rail is filled with quarters of beef, would remind one of the great packing plants in Chicago or Kansas City. Vast quantities of butter, fruits, vegetables and all manner of canned goods are always available.

By purchasing in such large quantities, the Navy Department secures prices which would make the housewife envious, while the quality is invariably of the highest standard.

In the last fiscal year stores were purchased totaling nearly $8,000,000. During recent years the purchases have been steadily increasing due to the number of ships being served by this depot, and, it is said, the preference on the part of the naval officers to get their stores from this base.

It is estimated that the supplies in stock at the present time have a total value approximating $25,000,000. The several buildings have a floor space totaling nearly 2,000,000 feet in area, sufficient to accommodate an even larger supply of food.

COMMERCIAL MACHINES LEADING TO DOMESTIC SALES IN MEXICO CITY

"Speaking of butcher shops," said E. C. Osbahr, of Mexico City, whose firm has just taken the distributorship for Norge electric refrigerators and who called at the NEWS office while in Detroit, "you people up here do not realize what a difference the location of a butcher shop may make in determining its refrigeration needs. You see, in Mexico City most of the buying is done during the early hours of the day and the butcher shop that is located where the sun will strike it during the buying hours must have a much heavier refrigeration system than the shop located on the shady side of the street during the morning hours. Of two shops located on opposite sides of the street, the one on the sunny side may require a one-horsepower condensing unit while the one on the opposite side is adequately taken care of by a one-third horsepower unit.

"Most stores open at six o'clock in the morning, closing at two in the afternoon for lunch and opening again at six, remaining open until nine o'clock in the evening.

Dr. Gasteleum, former head of the Health Department of Mexico, was largely instrumental in improving the methods of handling milk and meat where they are produced and sold. Electric refrigeration is being installed in the larger markets and these installations are having much to do with impressing upon the minds of the people the importance of proper refrigeration of perishable foods. There are between sixteen and twenty large public markets in Mexico City and a plan is being considered at present for installing electric refrigeration in large central cooling chambers, to be placed underground, where small meat dealers having stalls in the large market may keep their goods under proper refrigeration.

Dr. Villanueva, present head of the Health Department, is continuing the work of Dr. Gasteleum.

Popularity for the domestic electric refrigerator must follow the general adoption of electric cooling in commercial establishments, according to Mr. Osbahr, due to the fact the Mexican people can not be sold by high-pressure methods such as are used in the United States.

Have seen the equipment in the larger establishments and noted its effect upon foods; the people will then be much more easily sold on the value of electric refrigeration in the home.

MYSTERY MACHINE BAFFLES NEW YORK EDISON MEN

This is the story of a perverse refrigerator that—well, it consumed more electricity in winter than in summer. The customer complained about the size of the bill. A. F. Westervelt, manager, Lighting Inspection Bureau, New York Edison, put his most skilled inspectors on the job. Everything seemed perfect except the customer's state of mind. He wasn't satisfied. Then the meter testers got on the job. They reported everything as it should be; the customer was getting perfect service, they averred. In short, all the technical skill possible was put on the job. Still the customer's state of mind was not what it should have been so near Christmas. When the mystery seemed beyond solution one of Mr. Westervelt's inspectors let his quest lead him to the point where he began to suspect the building which housed the refrigerator that used more electricity in winter than in summer. He discovered a hot steam pipe, a very hot one, running under the floor directly beneath the offending refrigerator. The refrigerator was moved to another location.

Metropolitan Electric Topics.

G. P. & F. Announces New Round Refrigeration Dishes in Color

Geuder, Paeschke & Frey Co., Milwaukee, Wis., announces new round refrigerator dishes which, it is claimed, permit better circulation of air in the refrigerator, thus bringing about the long desired result of better refrigeration and correspondingly lower operating cost.

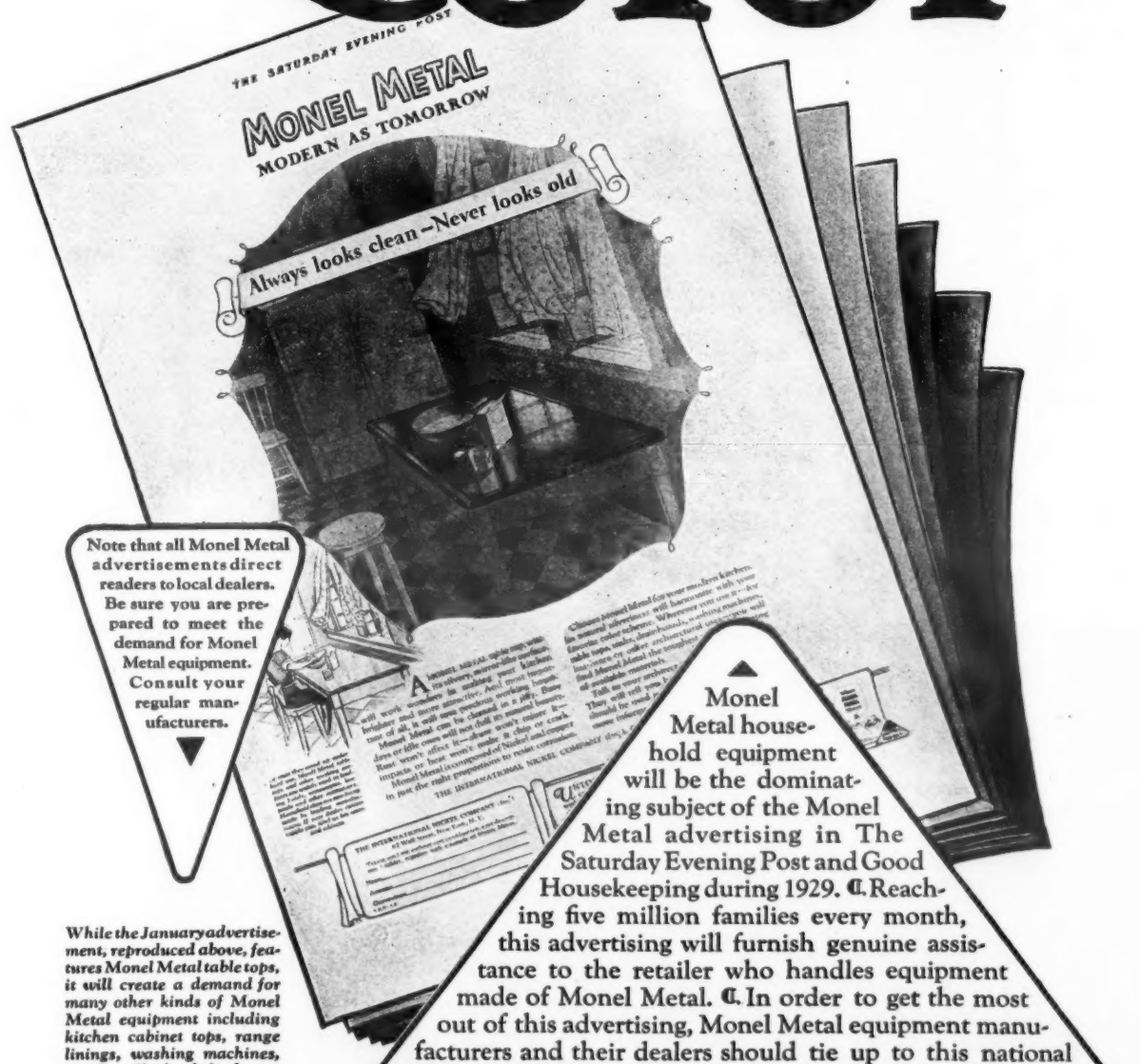
These dishes are being marketed as the Cream City radiant enameled round refrigerator dish sets. The enamel is triple coated and is furnished in oriental red, lettuce green, India yellow, all ivory lined, also pure white with white lining.

They are furnished in three sizes, with 4, 4½ and 5 inch diameters, and 2, 2½ and 4 inch heights respectively. Each set, consisting of three separate dishes with flat covers, is packed in an individual printed carton.

Portland Frigidaire to Enlarge

The Frigidaire Corp., of Portland, Ore., plans a new building to give added office and salesroom space and warehouse accommodation, according to W. W. Tyler, branch manager, and P. S. Wiggins, territory sales manager.

National Advertising in Color


THE SATURDAY EVENING POST
MONEL METAL
MODERN AS TOMORROW
Always looks clean—Never looks old
Note that all Monel Metal advertisements direct readers to local dealers. Be sure you are prepared to meet the demand for Monel Metal equipment. Consult your regular manufacturers.
Monel Metal household equipment will be the dominating subject of the Monel Metal advertising in The Saturday Evening Post and Good Housekeeping during 1929. ¶ Reaching five million families every month, this advertising will furnish genuine assistance to the retailer who handles equipment made of Monel Metal. ¶ In order to get the most out of this advertising, Monel Metal equipment manufacturers and their dealers should tie up to this national advertising by using counter cards, newspaper advertisements etc., prepared for their use. Write for complete information.

While the January advertisement, reproduced above, features Monel Metal table tops, it will create a demand for many other kinds of Monel Metal equipment including kitchen cabinet tops, range linings, washing machines, etc. It will also help the retailer who handles Monel Metal trimmed refrigerators.

Monel Metal is a technically controlled Nickel-Copper alloy of high Nickel content. It is mined, smelted, refined, rolled and marketed solely by The International Nickel Company, Inc. The name "Monel Metal" is a registered trade mark.

MONEL METAL

THE INTERNATIONAL NICKEL COMPANY, INC. MONEL METAL 67 WALL STREET, NEW YORK, N. Y.

Meat Markets Offer Outstanding Example of Economies of Electric Cooling

An Explanation of the Effect of Air Circulation on the Refrigeration of Meat

Size, Location and Design of Flues and Bunker Compartment Control Circulation and Regulate Humidity

By Gerald S. Bataille,
Director of Application, Harry L. Hussmann Refrigerator Co.,
St. Louis, Mo.

THERE are so many functionings to air circulation that many erroneous definitions have been given describing its primary purpose. In standard types of refrigerators and refrigerated cases the primary purpose of air circulation is to maintain proper temperature for food preservation.

But air circulation does many other things besides producing proper temperatures. It is the deciding factor of meat drying up, or remaining moist, or turning black, or shrinking in weight, or maintaining its weight.

Air circulation that might dry up meat in Denver, Colorado, could easily enough keep meat moist in Atlantic City, N. J. Likewise air circulation that could maintain proper temperatures in Augusta, Maine, might be insufficient to keep a refrigerator below 50 degrees in New Orleans, Louisiana.

So we see that air circulation in a refrigerator or refrigerated case should be designed to take care of many and various conditions. This can be done by correct baffling, bunkering, refrigerator design, humidity control and the proper application of mechanical equipment.

For the benefit of those who do not quite understand just what is meant by air circulation, let us take some conditions familiar to everyone.

By standing on a chair or step ladder in a living room, we find the air so hot near the ceiling that it stiffles us. Yet children are warned not to lie on the floor, as it is cold and drafty. The warmest air in the room is the lightest air and consequently it rises to the ceiling. The cold air being heavier falls to the floor. The rising of warm air and the falling of cold air is merely a matter of weights seeking their proper level and balance.

Warm Air Becomes Chilled and Falls to Bottom of Bunker

Refrigerators are built with a bunker for holding either ice or mechanical coils or brine tanks. These bunkers have an opening at the top called a warm air flue. This opening starts right from the ceiling of the refrigerator and extends down four or five inches. This permits the warmest air in the refrigerator to pass into the bunker for cooling. This warm air passing over the coils or brine tank becomes chilled, and gaining in weight falls to the bottom of the bunker where there is another opening called the cold air flue. The cold air drops through this opening down into the refrigerator. Heat leaks in through the walls of the refrigerator, and by door opening. This heat leakage warms the cold air and causes it to rise again as it loses in weight, or in other words as it gains in temperature. In its rise, it continues to gain in warmth from heat leakage, until its buoyancy and lightness is sufficient for it to reach the ceiling of the refrigerator. It is then drawn down over the coils again, having completed the cycle. This is air circulation.

The amount of air circulation and regulation of humidity is controlled by the size and location as well as the design of the warm and cold air flues, the bunker compartment, and the design of the refrigerator.

With reference to humidity control, we may again take an experience familiar to everyone.

A glass of ice water will quickly accumulate moisture on the outside surface of the glass. This moisture is called condensation.

In each cubic foot of air there is just so much moisture. The warmer air is, the more moisture it can absorb. That is why we immediately turn to a hot radiator or stove to dry anything quickly.

Air heated, say, to 90 degrees can hold approximately twice the amount of moisture air at 67 degrees may hold. If you were to suddenly chill 90-degree air with 100 per cent humidity (or in other words 90-degree air filled with all the moisture it can possibly hold) down to 67 degrees, it would immediately deposit half of its moisture in the form of condensation on the various surfaces it might contact with.

This is why a glass of ice water will have condensation on its outer surface. It has chilled warmer air laden with moisture to a temperature where it can no longer hold its full moisture content, and therefore deposits the condensation on the surface of the glass.

In a refrigerator the air passing over the coil or brine tank is likewise subjected to a sudden cooling, and deposits moisture on the coil or brine tank, which freezes and is commonly referred to as frost on the coils or tank. This "frost" is frozen condensation.

The air leaving the coils and passing through the coil air flue into the refrigerator is quite dry, having deposited a large portion of its moisture on the coils.

The air should be dry enough not to condense any moisture in the food compartment, and moist enough to prevent shrinkage and drying of meat and foodstuffs.

Particular care should be taken to see to it that meat and vegetables are not placed in the way of the warm air or cold air flues. Many merchants unwittingly place foodstuffs directly over the flues, making air circulation impossible. To get the best possible results from any refrigerator or case, the flues should be absolutely clear and free, permitting the air to flow freely through the flues.

Comparison of Flues in Refrigerator to Drafts on Stove

To give a perfectly understandable example of the importance of the flues, or we might say draught ports in a refrigerator, let us consider the purpose of the chimney and draught door on a stove.

To bring a fire up quickly we open up the lower draught door, push the damper back, and allow the smoke and heat to rise directly up the chimney. We have opened up the draughts so that the fire will burn, and the stove become hot. If we were to suddenly pull the damper in the chimney, the fire would smoke. If we were to close the lower draught door, the fire would hardly come up, and possibly would go out.

After the fire has come up, and we desired to check it for awhile, we would then close the lower draught door, or possibly turn the damper in the chimney or do both. Now if we proceeded to take the lids off the stove, and leave them off, the fire would die down and finally go out.

They are the same things that may be done with the draughts or flues in a refrigerator. By placing meats and foodstuffs in front of the flues, you are dampening down your refrigeration and losing a great amount of efficiency in the operation of the mechanical unit. It will increase the running time of the unit, and the results will be very unsatisfactory. The flues must be clear of any impediment to air circulation.

Some cold air flues have been designed with just an open port without a shed over the aperature. This has the same effect on the coil or brine tank as taking the lids off the stove.

The reason a fire goes out when we take the lids off the stove, is due to the fact that we break up the air circulation through the coals, and the fire, having no more oxygen to burn, dies out.

A cold air flue designed directly under the cooling unit without a protecting shed from warm air rising against the under part of the bunker is causing a pressure of air against the natural fall of cold air, causing the breaking up of air circulation through the coils or brine tank, rendering the mechanical equipment almost useless.

Wherever possible the cold air flue should be shaped funnel fashion, permitting the air to fall with force into the refrigerator. A flat bottom to any bunker compartment tends to slow up and retard the fall of the air, with the result that the air is dried out to a dangerously low point of humidity, causing the drying up of foodstuffs.

Laboratory Tests Show Loss of Weight in Steaks Kept in Refrigerator

Upon laboratory tests it has been discovered that a fresh cut steak will lose from one quarter to four ounces in twenty-four hours. Said steak will average about 24 ounces. This loss of weight is in evidence with both ice and mechanical refrigeration. The design of the bunker, the handling of air circulation, the location of the flues all having much to do with the results.

Air should travel through the average refrigerator flues between one and three feet per minute, according to the size and style of the refrigerator and its purpose. Air traveling faster is likely to blow too hard on the surfaces of the foodstuffs. This hard blow of air causes meat to darken and to dry out considerably.

Again, if this cold air flue is open to such an extent that the air falls much slower than 1 foot per minute, stagnation might set in, and the meats might become sticky and cover with sweat or condensation. Such a slow movement of air would have the same stifling effect as a hot room in the summer time without air circulation or proper ventilation.

In such a room, if we were to turn on an electric fan, we would immediately feel the benefit of the circulating air. The air would feel cooler and more refreshing. This is due to the fact that more air is coming in contact with our person per minute, and from a larger volume of air moving by us we get more benefit from the air for a given length of time.

It is quite similiar within the walls of a refrigerator. Meat and foodstuffs require a generous volume of air moving over the surfaces to keep them fresh and salable.

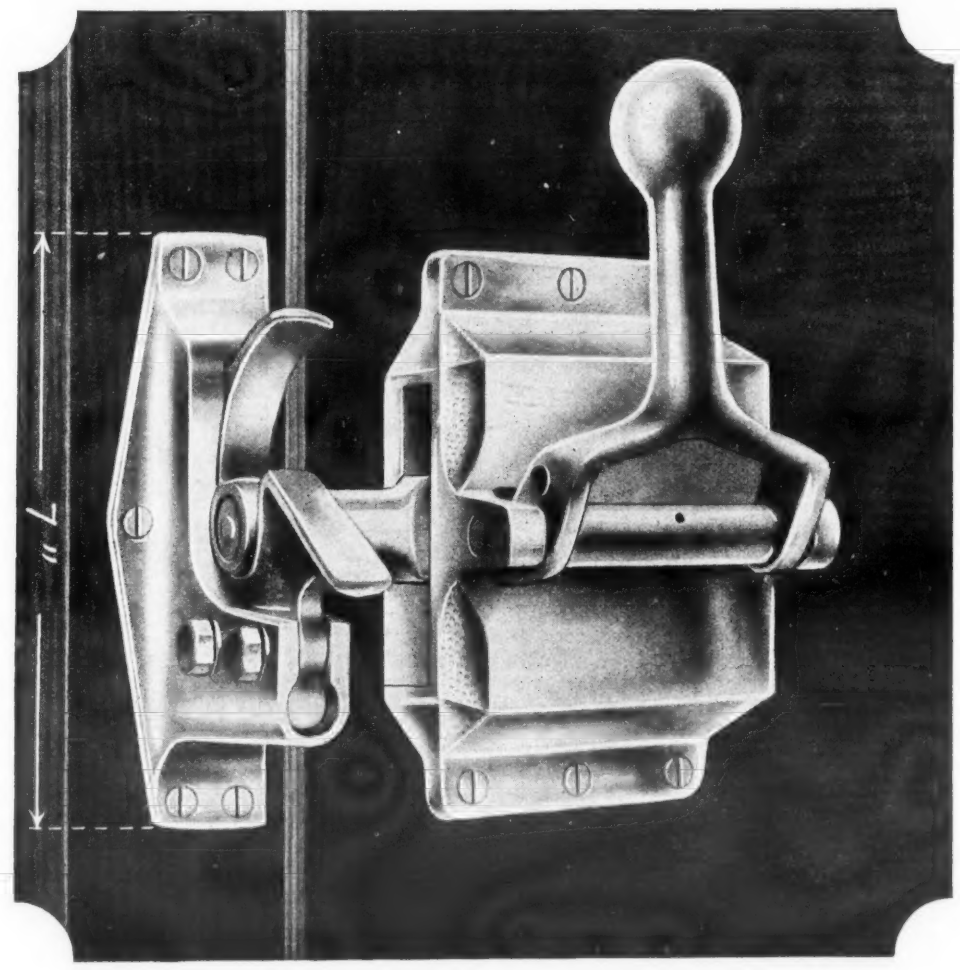
The warm air flue should be about the same size as the cold air flue. Many arguments have been advanced regarding the relative sizes of these two flues, warm and cold, but in many experiments the writer has made in this regard, no measurable amount of difference could

(Concluded on Page 13)

St. Louis Store Uses 115 Feet of McCray's Latest Model Top Counter

The above photograph of the store of the A. Moll Grocery Co., St. Louis, Mo., shows a part of the McCray installation. This installation consists of 115 feet of the latest model McCray top case with refrigerated base in which electric refrigeration is used. In speaking of the installation, K. B. Moll says: "We feel that the McCray cases afford excellent display for our merchandise. They are electrically illuminated and we give the man behind the counter the same opportunity to see the merchandise in the case as the customer has in front of the counter."

Butcher Cooler Locks



Patented Automatic
Entrance Door Lock
WITH INSIDE HANDLE
ACCURATE
STURDY
and POWERFUL!
BALL BEARING HINGES TO MATCH
GRAND RAPIDS BRASS CO.
GRAND RAPIDS, MICHIGAN

WELSBACH announces SELF-DEFROSTING UNITS *for Commercial Installations*

FORTY YEARS a leader, Welsbach Company again steps into prominence in announcing a further and significant contribution to the electric refrigeration field. The new Welsbach SUPER-FREEZER system, *which makes positive the defrosting of the freezing unit each operating cycle*, removes the last element of resistance in the minds of the prospect—grocer, butcher, florist or any of the thousands of merchants who are still using the older method.

FIRST in points of superiority is that dehydration of refrigerated foodstuffs is reduced to a negligible minimum.

SECOND—that the cooling unit area and surface is *always exactly proportioned to the capacity served*, maintaining unvarying refrigeration regardless of seasonal temperature changes.

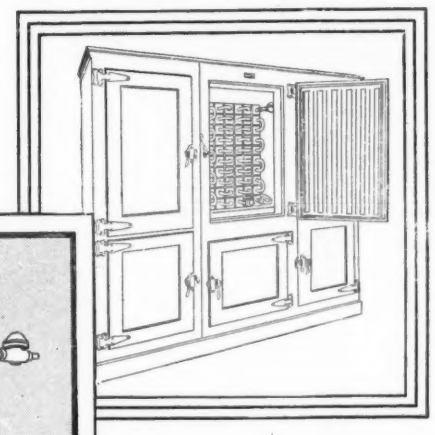
THIRD—periodic shut-downs to melt off accumulated frost are forever eliminated, and

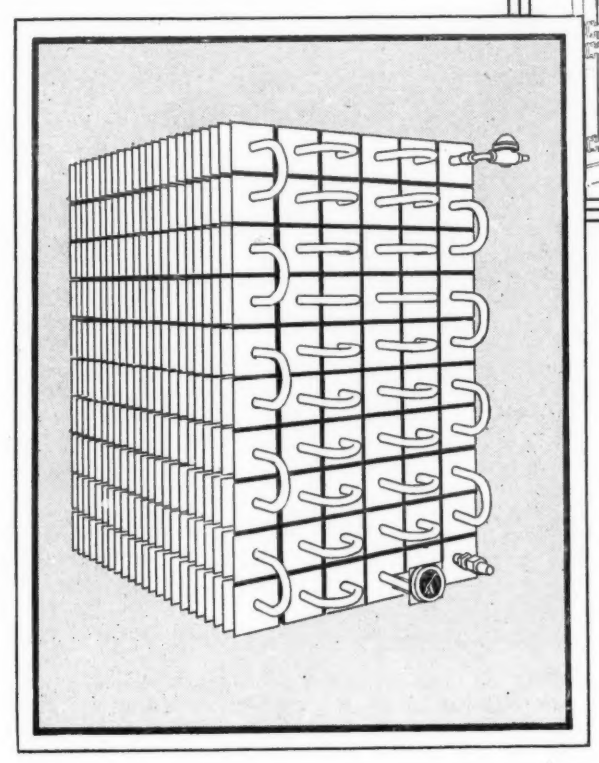
FOURTH—the retail selling price is decidedly competitive.

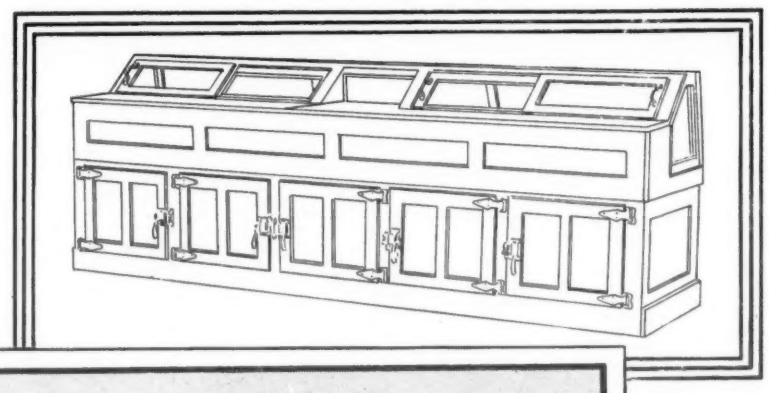
The Welsbach Super-Freezer system embraces all of the basic factors of Welsbach's superiority—a rugged, long-lived compressor employing an inoffensive, non-toxic refrigerant "Alcozol" in an air cooled system of high efficiency with pressures not exceeding 30 pounds per square inch even under extreme summer temperatures. Capacities exceed half ton rating.

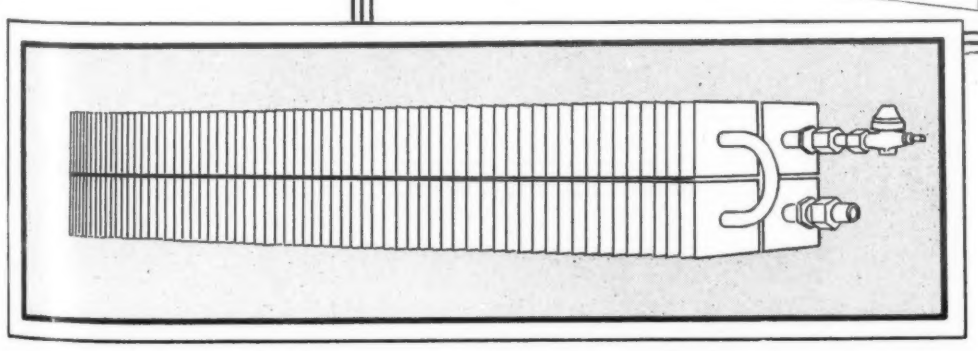
In addition to a line covering the entire electrical refrigeration field as now defined—including household cabinets that have pioneered features of design fast becoming standard for the industry — the Welsbach Company will soon announce additional and equally important developments still further enhancing the value of the Welsbach franchise.

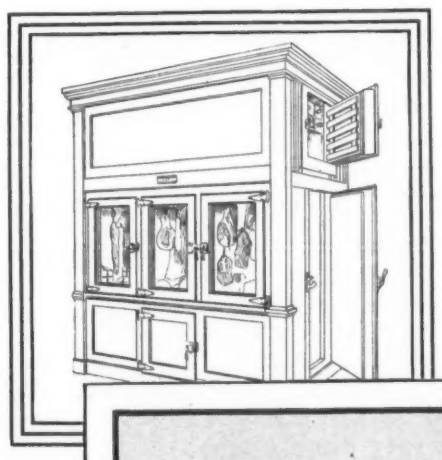
Address Welsbach Company
307 Ellis St., Gloucester City, N.J.

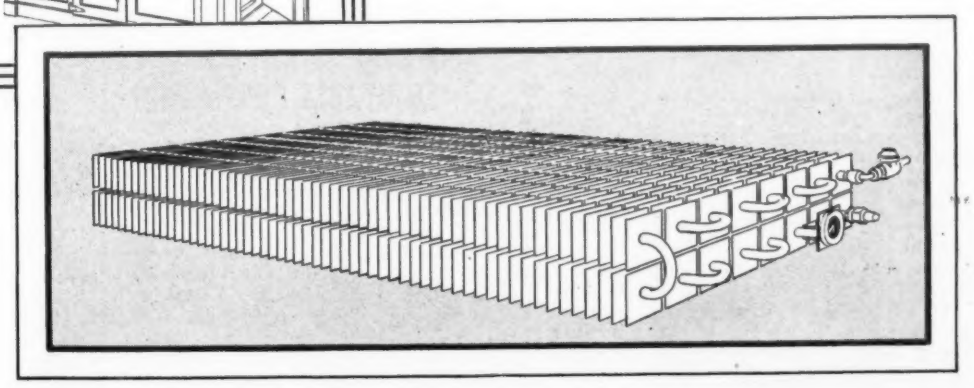












Welsbach *Low Pressure* Electric Refrigeration

Fitchburg, Mass., Market Turns Large Cooler Into Combination Show Window and Display Case

Above—Interior view of market showing display cooler running around back of store with display cases in front. Below—View into cooler as seen from show window fronting on street.

A Frigidaire installation in the establishment of Fennia Market, Inc., 24 Academy St., Fitchburg, Mass., presents a remarkable demonstration of the advantages of electric refrigeration, along with a highly effective method of store advertising.

The installation, views of which are shown in the accompanying photos, is notable for the great expanse of exposed surface, with much plate glass included. The entire interior of the refrigerator is plainly visible both from the inside of the store and from the street, looking through the front window. From the sidewalk one looks directly into the refrigerator through three sheets of plate glass, separated by air spaces. Thus the customer can see at all times the quality of the goods, the condition of the refrigerator and the movements of the employees within the enclosure.

A great advantage on the service end is that the array of showcases along the front of the enclosure forms part of the refrigerator itself, and the marketmen can readily withdraw goods from the refrigerator or return them without loss of time.

The depth of the refrigerator from the plate glass front to the rear is 40 feet, the width is 12 feet for the central portion and 15 feet for the sections at either end, and the height is approximately 10 feet.

Equipment includes three model "C" compressors of 1 hp. each and eight 96F coils. The efficiency of this equipment under the test of sustained hot weather has been proved.

The market using this installation is run by a Finnish co-operative buying organization, and the establishment was being remodelled from an old store when a salesman from the Worcester office of the Springfield branch of the Frigidaire Corporation interested the manager in the possibility of an installation of this nature. He was enabled to point to the success of a previous installation by the Polish co-operative association of Indian Orchard, Mass., which, however, lacked the unusual display features built into the Fitchburg market.

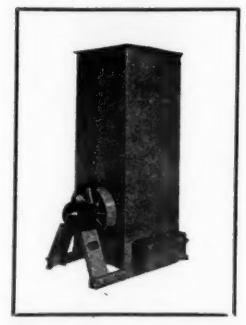
Frigidaire Man Sells 19 Units First Week of New Year

A. C. Bedell, salesman of the A. F. Wood Co., Evansville, Ind., distributor for Frigidaire in southern Indiana, Illinois and western Kentucky, believes he has established a record for individual domestic sales in the winter months.

During the week ending Jan. 5 he succeeded in securing orders for nineteen Frigidaires, seven of which he closed on Friday, Jan. 4. The installations were all household boxes varying from 5 to 9 cu. ft. in size.

97% WATER SAVING "BAFFLE-WHIRL" COOLING TOWERS

USED FOR
Refrigerating Machinery
Oil-Gas and Diesel Engines
Candy Making Machinery
Air Compressors
Gas Producers
Humidifiers
Air Washers

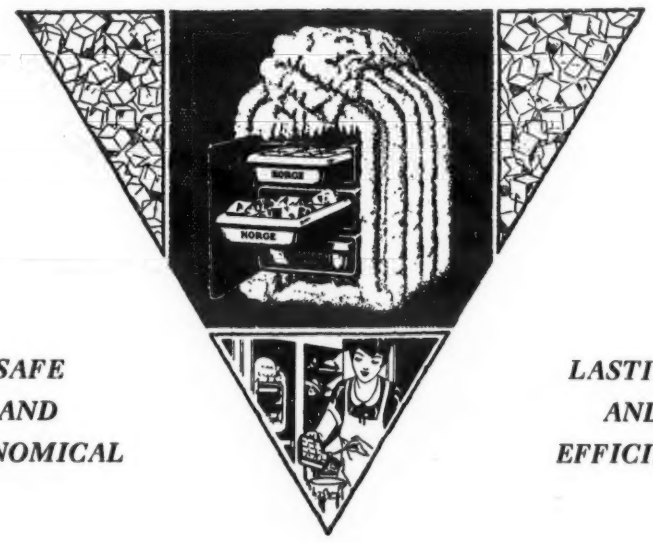


NOTED FOR
Sturdy Construction
Accessibility
Volume
Ideal Performance
Non-corrosion
Great Efficiency
Simplicity

Literature on Request
ZANESVILLE ENGINEERING CORPORATION, Zanesville, Ohio

SUPERIOR REFRIGERATOR CASTINGS
FLINT FOUNDRY COMPANY
Division of
General Foundry & Machine Company
FLINT, MICH. MARSHALL, MICH.

NORGE GROWTH KEEPS PACE
With Increased Refrigeration Demand



SAFE AND ECONOMICAL

LASTING AND EFFICIENT

NORGE has "kept step" in the forward march in the field of Electric Refrigeration. Today, NORGE offers Electric Refrigeration equipment that embodies many improvements and refinements, the result of patient research and engineering skill.

NORGE distributors in 1929 have a complete line of domestic refrigerators, of sound construction, built to give increasingly satisfactory service. A permanently quiet compressor, and the fact that the NORGE unit improves with use was never truer than in the 1929 product.

Sales policies for NORGE distribution in 1929 are liberal and promise close co-operation with distributors everywhere. The advertising program is comprehensive and ties up intimately with the distributors' needs.

NORGE sales policies and prices enable the distributor to realize an attractive profit on his investment. For the coming year, NORGE is laying plans for an intensive, aggressive merchandising program closely dove-tailed with the distributors' requirements. With its ample resources, proven product and a distributor organization actively functioning, the NORGE Franchise is becoming more valuable and desirable daily.

Your request asking about available territory will receive prompt attention and will bring you full information concerning the profit possibilities of the NORGE Franchise. Write for this information today.

NORGE
ECONOMICAL REFRIGERATION
DETROIT - MICHIGAN

WELSBACH ANNOUNCES NEW CROSS FIN UNITS FOR COMMERCIAL USE

The Welsbach Company, Gloucester, N. J., announces to its distributor and dealer organization a self-defrosting, cross finned evaporator, termed the "Super Freezer system."

Evaporators of the new construction are cross finned, direct expansion coils, operating on the direct refrigeration principle without the use of the brine tank and employ the conventional Welsbach dry gas system with standard Welsbach expansion valve. In equipments up to ¼ ton capacity, only 32 ounces of the Welsbach low pressure refrigerant "Alcozol" are employed, equipments up to more than half ton rating being operated with 4 pounds of refrigerant. Super Freezer systems are proportioned with such ample refrigerating surface that a defrosting cycle is insured, the original high operating efficiency being maintained, and periodic shut-downs for defrosting being eliminated.

The new systems are designed to maintain the temperature of the refrigerated compartment within close limits regardless of seasonal changes.

In conjunction with the new Welsbach systems the factory reports that there will be additional and equally important announcements by the company at an early date, as the organization has concluded development work along lines which will broaden the field of application of electric refrigeration beyond the range now served by the industry.

FRUIT LOAF MAKES AN ENJOYABLE CONFECTION

1 package dates
1 package shredded cocoanut
½ cup chopped nuts
½ pound dried figs
1 tbsp. orange juice
1 tsp. chopped orange rind

Grind nuts, dates, figs, and cocoanut through a grinder which has been dipped in boiling water. Knead in orange juice and chopped rind. Divide the mixture into two parts, placing one-half in a buttered loaf-pan, pressing it in tightly. Crease the surface with a knife into small squares and place a nutmeat on each square. Allow to stand for several hours in main compartment of refrigerator, then cut on the creases, dipping the knife into hot water frequently to make cutting easy. The other half of the mixture is used to make tiny balls, which are rolled in finely chopped nutmeats or shredded cocoanut.

TABLOID AND BROCHURE FEATURES OF GEORGIA POWER CO. PUBLICITY

Sixty thousand copies of a tabloid announcing Christmas sales and giving interesting information of the industry were sent out by the Georgia Power Co., Atlanta, Ga., just before the Christmas selling season. The tabloid was sent to customers and prospects of the company. It was printed on green paper, carried a variety of interesting items for the housewife as well as many suggestions for the electrical gift for Christmas. Christmas recipes were well represented.

Another piece of promotional material was a small brochure of forty pages, which was sent to approximately 300 members of he merchandise division. It contained many inspirational poems and prose selections. It was prepared by H. A. Pendergraph, merchandise manager, and carried a Christmas message signed by him.

Accidents cost industry approximately $5,000,000,000 annually. An authority on the subject states that 88 per cent of all industrial accidents can be prevented through enforcement of proper safety rules.

The first public street lighting is said to have been on Pall Mall, London, in 1807.

How To Prevent Losses In The Commercial Department

A Talk to Dealers by Geo. R. Lindahl, General Sales Manager, Commercial Refrigerator Mfg. Co., Los Angeles, Calif.

IN order to arrive at a cure for any condition a study of the cause is necessary. In the past the commercial department of many electric refrigeration dealers has been a source of grief and expense. This was due, in part, to inability to obtain trained installation and service mechanics. Commercial salesmen, too, were hard to obtain and hold, as commercial sales usually required an individual who knew considerable about the principles and application of proper refrigeration.

This resulted in hasty and ill-advised training of many men who were not mechanically inclined, by other men who did not know a great deal about the requirements of commercial refrigeration. The results were inevitable—over sold customers, poor installations in improperly designed and insulated display or service refrigerators, therefore poor refrigeration delivered.

Many electric refrigeration concerns failed to realize the vast gulf between household and commercial refrigeration. The household user bought goods one day and generally consumed them the next. The only refrigeration actually required was for a temporary hold-over. Ice had done this satisfactorily for many years as a temperature of 50 degrees F. was generally considered sufficient.

Commercial refrigeration, however, was a different proposition. Goods must be perfectly preserved for an indefinite period. Dehydration (losses in weight of perishable foods) must be kept down to the minimum. Cost of operation must not be excessive. Temperatures must be constantly maintained and low enough to prevent rapid multiplication of mould or bacteria.

Service calls from users, compressors returned, law suits, all contributed to make the commercial department of the dealer very unprofitable and all the result of improper engineering and installation.

Some display and service refrigerator manufacturers did not give any co-operation towards alleviating this condition—in fact, they made it worse, if possible. They built fixtures that were impossible to refrigerate properly. They passed the buck to the dealer and he staggered under the load or discontinued the commercial department altogether.

The only way that an electric refrigeration dealer can be sure of satisfied users without excessive service is to refuse to connect his compressor to any equipment that is improperly designed or insulated. He must avoid guarantees as to temperatures or running time of compressor or cost of operation. He must not try to refrigerate single glass "shoo fly" cases. He must stay away from refrigerators built without insulation, and with leaky joints.

If the average small dealer discontinues the commercial department altogether how is he going to maintain quotas, keep installation men employed and keep his overhead down. He needs this commercial business and should have it.

The dealer in electric refrigeration can make the commercial department the most profitable department in his business if he sells with his line of compressors a line of equipment that needs electric refrigeration. By having a complete line of equipment that is built and designed for mechanical refrigeration he opens up an unlimited sales outlet possibility.

Every merchant who handles perishable foods is then a good prospect. The salesmen have "something to talk about." They can sell ten compressors where they only sold one before. They can point out to the merchant the "need" for this equipment and sell him on the want—and the want makes the sales.

In this way the salesman sells both equipment and compressor with only the same amount of effort he put into selling the compressor alone. He doubles his net earnings and greatly increases the net profit of the dealer, as the overhead is no greater.

"But," says the dealer, "are we going to be any better off?" These items of equipment usually require proper engineering by the dealer, installation difficulties, considerable service calls, and our men are not trained sufficiently to accomplish the engineering and service necessary."

Refrigerator Cases Should Be Designed for Mechanical Operation

The only answer to this is the proper engineering be put up squarely to the equipment manufacturer. The equipment manufacturer must know his business from every angle. A "new" line must be created that dovetails in with mechanical refrigeration. Using the old ice display cases or service refrigerators and advertising them "for either ice or coils" does not accomplish this purpose. Changes must be made in design and insulation.

The manufacturer of equipment must employ trained refrigeration engineers. He must build into his equipment the proper type of coil that will properly refrigerate under maximum conditions. These coils must be arranged so that equal temperatures are maintained in every part of the case. Insulation must be good to keep down heat leakage and excessive operation of the compressor. Coils must be installed in the equipment in the factory and be thoroughly tested before shipment.

Dripping of water on foods must be prevented. Coil must be placed in equipment so it will not interfere with service. Coils must not obstruct or hide any of the foods stored or displayed. Drain pans must be easily accessible for cleaning so as to conform with sanitary regulations.

Equipment Manufacturer Should Know Food Merchandising

The successful equipment manufacturer of the future must combine a thorough knowledge of proper display and proper refrigeration. He must be a combination display expert and refrigeration engineer. He must know the needs of the perishable food merchant. He must be a merchandising expert. He must have a knowledge of perishable food chemistry.

He must know why foods decompose, discolor and shrink and what he should do to prevent it. He must know what the public demands in the way of properly kept foods and know how to design and build a display of storage fixtures that will keep the foods in the condition demanded by the consuming public—and kept without loss to the perishable food merchant.

He must know the problems and needs of the perishable food merchant so well that he can design and build a fixture that full answers every need. He must not depend on any other individual, firm or corporation or to expect them to do any part of his work. He must do it all—and then make his recommendations as to size, type and make of machine that should be used with the different models and sizes of his equipment, variable, of course, in different climatic conditions.

This would bring the merchandising of machines and equipment down to a question of sales ability. Every fixture sold will do the work for which it was intended. Every machine will be pulling its correct load. There is to be no one to "pass the buck" to. The merchant will secure proper display and proper refrigeration. The calls for machine service will be limited to defective parts, poor connections or lack of sufficient refrigerant.

The equipment manufacturer would then be placed on record as definitely stating just what his fixture would or would not do. If the machine dealer connected the compressor to the equipment in the correct manner specified by the equipment manufacturer, and the equipment failed to perform, he could honestly "pass the buck" back to the equipment manufacturer and "make it stick."

This in turn would force the equipment manufacturer to place men in the field to train and educate the dealer in the proper installation of his equipment. No engineering training is necessary, as the equipment was completely engineered before leaving the factory. If the equipment is correctly installed it will work.

This ideal condition will be brought about when the dealer in electric refrigeration positively refuses to connect to any piece of equipment that has not been properly engineered at the factory. When this is done the dealer will find a wonderfully profitable field in the sales of commercial equipment and compressors without sacrificing the profits made in service and re-possessions.

General Electric Co. estimates the refrigeration market to show 5% saturation.

Dairy Products Well Displayed in Thesco Wall and Counter Cases

The Dairy Products Department of Yingling's Market, Martin Ferry, Ohio, is equipped with a refrigerated wall case and a counter display case, both made by the C. Schmidt Co., Cincinnati. The upper part of the wall case is arranged for display with frameless polished plate glass sliding doors, and the lower part is used for storage. The counters in the front have the lower part refrigerated for storage, and the upper part arranged for display. This installation is connected with a York machine with direct expansion ammonia coils.

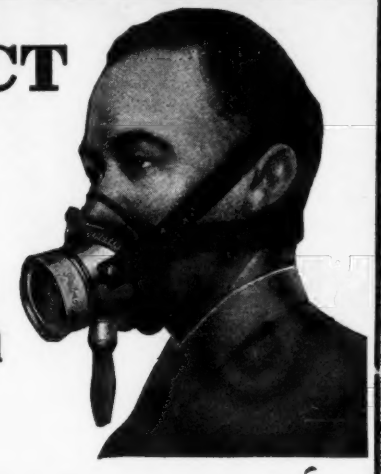
PROTECT YOUR—

Service Repair Men from

Sulphur Dioxide (SO_2) with PULMOSAN CHEMICAL CARTRIDGE SO_2 RESPIRATORS

Small, Light, Convenient Safe!

Send Coupon for Information



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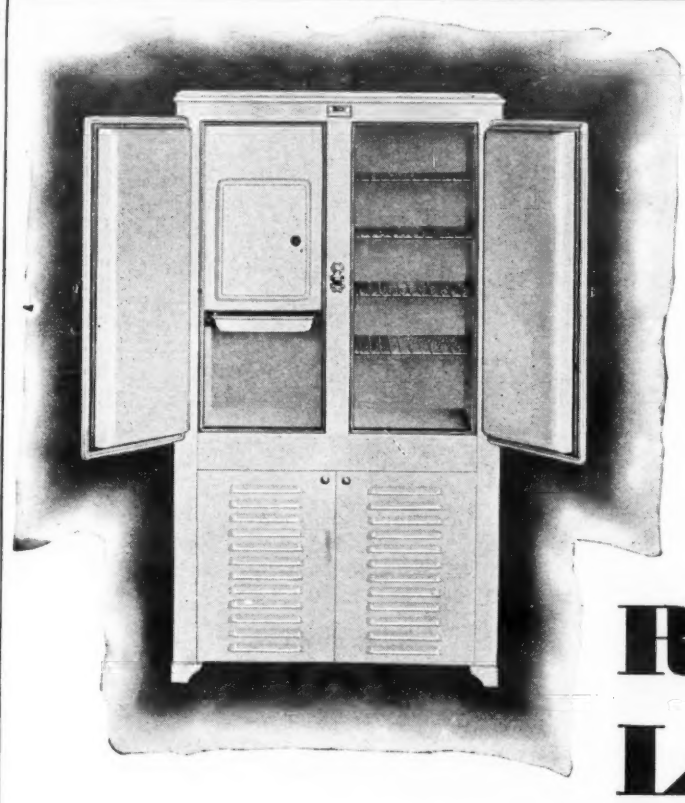

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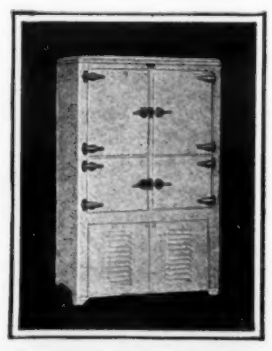

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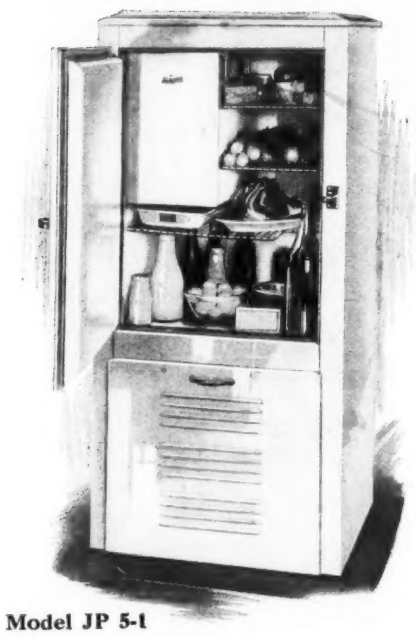

Model JP 5-1

Model JP 5-2

Model JP 7

Model JP 9

The New Models for Residences

BEAUTIFUL and different are these Cabinets for Residence and Quality of Construction in Materials and Workmanship.

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The Junior Line may also be had with Exterior Lacquer

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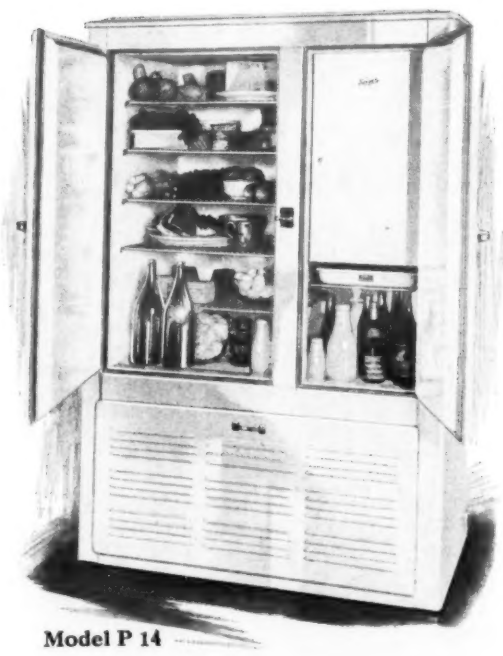

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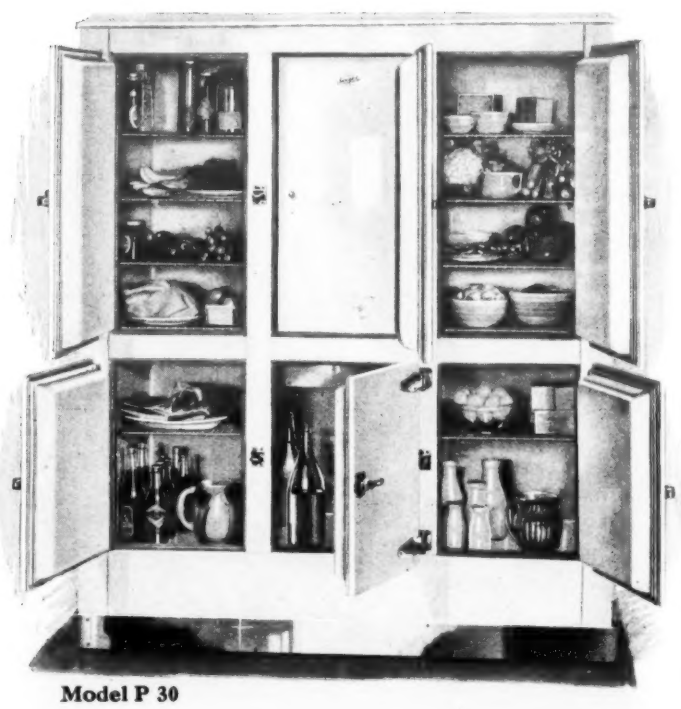

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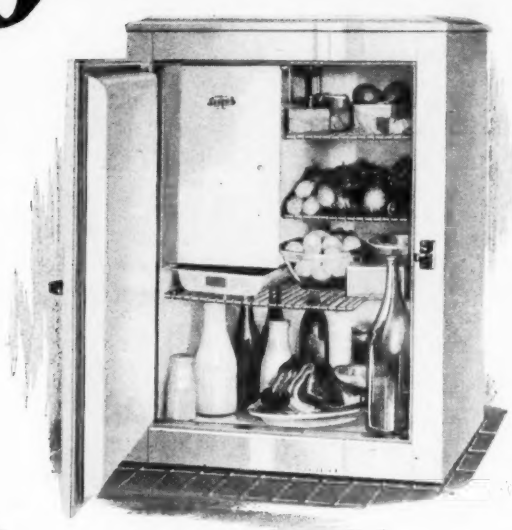
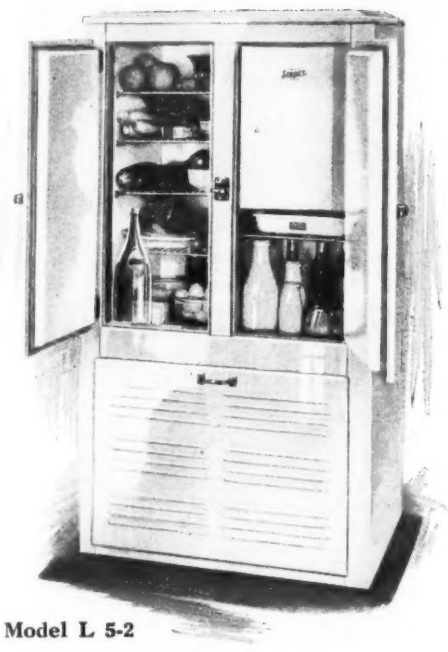


Model LA 5



Model L 5-2

Model L 5-1

Model L 4

or idences and Apartments

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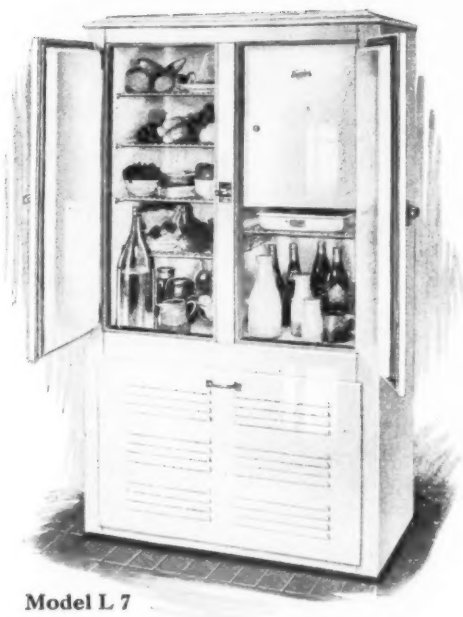
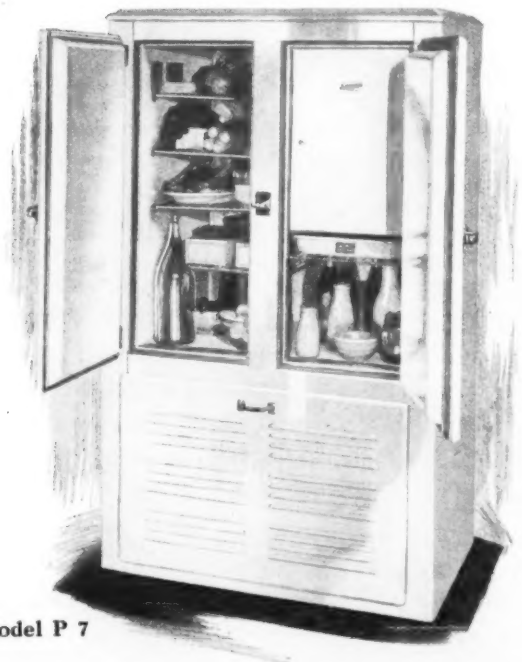


Model L 7

Model P 16

Model P 9



Model P 7

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ELECTRIC REFRIGERATION NEWS

The Business Newspaper of the Refrigeration Industry

PUBLISHED EVERY TWO WEEKS BY

BUSINESS NEWS PUBLISHING CO.

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JANUARY 16, 1929

Safety Codes

COMMUNICATIONS published in this issue indicate the conflict of opinion existing between certain factions in the industry with respect to safety codes and ordinances. The efforts of various organizations to develop rules governing the installation of refrigeration equipment have stirred up many controversies with the result that a satisfactory solution has been postponed for months and years.

While the rank and file of the industry have known little about the proceedings, a relatively small number of individuals have been working more or less constantly to advance particular interests or to compromise the opposing forces. In general, the activity has been most dignified and regular but underneath the surface there have been charges and countercharges of "politics"—the term being used to connote everything from aggressiveness in promoting a personal opinion to attempts to use the code to gain an advantage over competition.

On several occasions the NEWS has propounded the principle that the industry—manufacturers, dealers, engineers and salesmen alike—is entitled to full information regarding all matters affecting the general welfare of the business. The NEWS has undertaken the function of providing a medium for industry education and a clearing house for the exchange of ideas and opinion on all subjects of common interest. The NEWS submits its record of continuous and constructive performance, its growth and acceptance by the industry, as proof of its right to give this service. With this fundamental viewpoint the NEWS has called attention to the progressive steps in code activity and has opened its columns for the expression of opinion on the subject.

To those who have taken issue with the views of contributors as published in the NEWS, an invitation has been extended to present their side of the case. The NEWS has not felt called upon to judge the merits of the various arguments but has held firmly to the belief that regulations fair to the industry, and offering reasonable protection to the public, will be evolved if all interests are properly informed and given due consideration.

Without attempting to analyze *all* of the conditions which have made it difficult to reach an agreement on codes, we have observed with interest the effect of certain noticeable factors. One of these is the apparent antipathy of the pioneers in refrigerating engineering for everything connected with "electric" refrigeration. Another is the attitude of impatience of the younger crowd of manufacturing and engineering executives toward the scientific knowledge accumulated by many years of experience and study on the part of the oldtimers in the field.

Only a few years ago, judging by the discussions in the then current literature of refrigeration, the veterans belittled the "small, portable, automatically-operated, self-contained unit" as an impractical toy of visionaries and having no significance worthy of their serious notice. Little help they gave the newcomer in meeting the serious problems of a young industry. It is not surprising, therefore, that those intent upon fulfilling their dreams of a giant industry, giving a much needed service to the public, should disregard the existing order and set about to accomplish their purposes in their own way and manner.

An example of this fundamental conflict is shown in the difference of viewpoint toward what constitutes "experience" on which to base safety rules. The younger generation does not figure that a given method has been tried until they have tried it and they are insisting upon the right to try out a number of theories to their own satisfaction. The older group, on the other hand, argues that what it tried and found undesirable twenty years ago should be ruled out accordingly. There is probably no satisfactory answer to such an argument but an interesting side light is thrown on the subject by a decision, a few years ago, of Henry Ford. It will be recalled that he ordered that no record be kept of unsuccessful experiments lest the accumulation would, in time, build up an overweight of evidence that things cannot be done.

As previously stated, the NEWS offers no opinion as to what particular type of equipment represents the highest degree of safety or efficiency or what method of installation is unsafe or uneconomical. We take the position, however, that the best interests of the industry will be served by free and open discussion and that no permanent good will come from a code which must be put through by secret diplomacy.

Market Display Greatly Facilitated by Modern Equipment

The Standard Refrigerator Co., Philadelphia, Pa., recently installed cooling equipment for the meat department of the Hubbs Stores, Inc., Wayne, Pa. The cases are one 6-foot model used for smoked meats, and two 10-foot and one 8-foot model used for fresh meats. A large Standard cooler may also be seen at the far end of the store.

HEDLUND DISAGREES WITH SMITHSON ON UNDERWRITERS' CODE

Points to Essential Difference Between Fire and Public Safety Codes

William T. Hedlund,
51 East 42nd Street,
New York, N. Y.
January 10, 1929.

Editor,
Electric Refrigeration News,
Detroit, Michigan.

Mr. R. E. Smithson's article on the Board of Fire Underwriters Code appearing in the issue of January 2, 1929, has given me several new points of view on this Code which might bear comment for he reason that I had previously read this code but did not understand it in the light presented by Mr. Smithson.

In reading this code, I first read the Foreword which points out that the code "should be considered as establishing the *probable minimum* of safe requirements." From this I obtained the idea that this code was a sort of temporary measure pending the further determination of what *actually* was safe rather than what *probably* was safe. It was easy to understand that the Board of Fire Underwriters might be willing to use a somewhat loose code based on existing conditions and probable safety, for fire insurance purposes, until such time as a code could be framed which would deal with real safety rather than probable safety, this for the reason that a real safety code must obviously take a long time in preparation to be properly treated, in view of the large number of interests affected.

Mr. Smithson's article makes it clear that his position is quite different. He takes he unqualified stand that this code is a final code of actual safety. He goes so far as to say that cities should adopt the code in minute detail and without charge. The code itself suggests merely that it might be made a *basis* for municipal ordinances; an entirely different intent.

Obviously a true safety code should take into account a great number of interests outside of the manufacturers of multiple installations. Mr. Smithson states: "The new National Code is after all simply the expression of the best thought of the manufacturers and installation men * * *." The only inference I can draw from this and other statements by Mr. Smithson is that this Underwriters' Code is a manufacturer's code drawn around a specific installation me hod already in existence.

On the basis that the code sets out an installation method which will not vitiate insurance protection, I can see sense to the code. However, to unqualifiedly urge this Underwriters' Code on municipalities without change is to treat it in a manner which apparently was not intended or understood. This is to make a true safety code of it and, as a safety code, it should be for the protection of the public rather than protection of the manufacturers. The only justification for a municipality to enact a code for multiple installations would be to insure safety for its people. There can be no purpose in municipal adoption for regulating insurance rates because this is what the code does already, the insurance interests being law unto themselves on rates. However, Mr. Smithson states boldly that manufacturers should, *for their own protection*, that is, the manufacturer's protection, urge the adoption of this Underwriters' Code as a local municipal code in minute detail and without change.

This has made clear to me a procedure which I did not understand to have been contemplated in the framing of the Underwriters' Code, which is as follows:

The average person, who does not stop to analyze this situation will not see the difference between a Fire Insurance Code and a Public Safety Code. What is protection against a fire is not necessarily protection for the body. Many gases will not burn or aid combustion of a building but they will suffocate. Fire Underwriters are interested in the building. The municipality is interested in the body. Why then should provisions which have a bearing on protection of real estate have any bearing on protection of human life and health? They are different. Yet they have a common link in the idea of safety.

So the average person referred to, if he sees only the idea of safety, without regard o what it is applied to can readily become confused.

So, assuming now that I am a manufacturer of multiple systems, having obtained approval of the Fire Underwriters of a code permitting me to manufacture as I want, I will take this code to the municipalities and say that this is a safety code, and so broadly it is, and so get the municipalities to forget that the destruction of bodies is not the burning of real estate and adopt this code permitting multiple installations with substantially unrestricted conditions.

If this is the way of working, it is time we caught ourselves to prevent this breach of faith with the public, be it intentional or unintentional.

This is not a question of the value of the code. It may well serve its purpose to regulate insurance rates. It may be the best possible code for the work of the Fire Underwriters. Yet that does not make it a true safety code.

My understanding is that a National Standards organization allied with the A. S. R. E. has been working on a true safety code, not yet finished. That work is slow because so many interests are represented including the U. S. Department of Labor, United States Bureau of Standards, National Safety Council, National Association of Ice Industries, International Association of Industrial Accident Boards and Commissions and other groups independent of either Multiple System manufacturers or fire insurance people. Conceivably, many of these were not called into consultation on the Fire Underwriters' Code and there was no reason for it. This probably explains why the Fire Underwriters' Code comes out ahead of the other safety code considered by all these interests.

To obtain public adoption of the Fire Underwriters' Code as a public safety code would give the manufacturer a jump on possible restrictions in the ultimate safety code and make it difficult to obtain passage of a subsequent code.

The examples shown by Mr. Smithson as complying with the Fire Underwriters' Code are interesting. I notice that all valves are capped and that the cap must be removed before a wrench can be applied to close the valve. If this fulfills the code requirement that "These valves shall be fitted with a hand wheel or other means of ready operation as an integral part thereof", then the code cannot be intended to be severe in its restrictions. This must come under "or other means"; certainly liberal wording.

I see in the pictures no evidence of a certificate of approval required under 3 (b). You would naturally suppose that the certificate of approval would be placed near the system, but on reading the code, we see that the certificate need only be "on the premises." And who issues the certificate of approval? These are not vital points but are merely pointed out to show further reasons why Mr. Smithson's article and a reconsideration of the code from the new point of view have led me to wonder about this procedure.

Manufacturers of multiple systems will undoubtedly feel happy to have municipalities adopt the code of the Fire Underwriters because it permits them an enormous latitude of operation with consequent pecuniary remuneration, together with a release from liabilities.

Mr. Smithson's article sounds to me very much like the victorious anthem of the home returning warrior.

WM. T. HEDLUND.

AN UNNECESSARY MIDDLEMAN

Simultaneously three public service commissions have had before them the question—troublesome in large cities—whether owners of apartment houses shall be permitted to install master meters, buying their energy at wholesale prices and retailing it to the individual tenants at the legal domestic rates, or more if they can "get away with it," while the tenant has neither the right to appeal to the commission in case of a disputed bill nor the power to force an inspection of a meter suspected of inaccuracy. The New York Public Service Commission and the Public Utilities Commission of the District of Columbia are still wrestling with this problem, but the New Jersey Board of Public Utility Commissioners has unhesitatingly declared the Public Service Electric & Gas Company justified in refusing to furnish a master meter to an apartment-house landlord who had arranged with a meter-service company to fit out his flats with individual submeters for a share of the profits.

That other commissions will follow the lead of New Jersey and that they shall be sustained by the courts, if the dispute be taken there, may surely be hoped. The central-station companies are entitled to their full domestic rates from dwellers in apartment houses, and the tenants, whose case bears no resemblance to that of transient hotel patrons or of renters of offices who have no separate meters, are entitled to the protection of the commissions.

—An editorial from
Electrical World,
December 29, 1928.

PROTESTS COMPARISON OF OLD AND NEW MACHINES

Electric Refrigeration News,
Detroit, Mich.

In your issue of Dec. 19, 1928, there appeared on page seven an illustration of an apartment building installation.

It is an example of good workmanship, but why knock the fellow who helped pioneer refrigeration? I think it is a very poor comparison of a plant built almost half a century ago with one of modern construction. And even so, how many plants of this type have been replaced by other makes in only the last two years?

Those who have followed refrigeration for the last ten years or more know the result of such tactics. It does not promote refrigeration, but usually creates suspicion in the mind of the buying public and is difficult to overcome.

As one of your subscribers I ask you to devote most of the valuable space in your paper to the betterment of the industry and fellow-men engaged in it.

I remain, sincerely yours,
Charles W. Domitsky,
Consulting Engineer and Mgr. Refrigerating Machine Dept., Western Butchers Supply Co., San Francisco, Calif.

Wants News for Service Man

2829 Pina del Vista Dr.
Altadena, Calif.

Electric Refrigeration News,
Detroit, Mich.,

Enclosed find check for which renew my subscription for one year. Please let us have a page for the service man.

Yours for a bigger and better year in 1929.

James R. Redmond.

Is Brimful of Information

Your January 2 issue at hand. We wish to congratulate you upon the completeness of this annual number. It is brimful of interesting information and will be filed away for future use by us.

—Charles C. Kritzer, president Peerless Ice Machine Co., Chicago, Ill.

Congratulates News

I wish to congratulate you on the splendid issue of the ELECTRIC REFRIGERATION NEWS which arrived at our office this week.

—John A. Berghoff, general manager The Wayne Home Equipment Company, Fort Wayne, Ind.

The average farmer of years ago, consumed 85% of his produce and sold 15%. Now he consumes 15% and sells 85%, it is estimated.

Exports of dried fruit from the United States amount to more than one-third of he production and have an annual value of $35,000,000.—*The Facts in Food Distribution.*

Our railroads are handling some fifty-two million carloads of freight per year.

The per capita investment in the electrical industry is about $183 and the per capita annual payment for service is about $26. For this small sum the public receives light, power and telephone service and all the indirect benefits accruing through the operations of a mammoth industry. —*Electrical World.*

Commercial vs. Safety Code For Refrigerating Systems

By E. T. Williams
Member, American Standards Association Sectional Committee on Mechanical Refrigeration

THERE is in progress an attempt to write into the A. S. A. Refrigeration Code an additional section covering Direct Multiple Systems as installed in apartment dwellings. It has been stated that this section would be substantially the same as the National Board of Fire Underwriters' "Installation Code for Multiple Refrigerating Systems."

Apart from the specific provisions of this Underwriters' Code, and broadly speaking, the extension, above the first floor of apartment dwellings, of direct systems containing over 20 lbs. of irritant and/or flammable refrigerant is not only dangerous but entirely inconsistent with the A. S. A. Code, which has been approved by an overwhelming majority of the Sectional Committee.

The question of prohibiting Class C systems (systems containing over 20 lbs. and not more than 100 lbs. of refrigerant) above the first floor, as specified in Rule No. 1504, was specifically decided in the affirmative by written ballot vote of the entire committee.

It is now proposed to authorize the extension of systems containing up to 100 lbs. of refrigerant throughout apartment dwellings and other buildings,

Without limit as to the number of such systems in any one building;

Without requirement for authorative inspection, test and approval preliminary to charging and operating.

There is no question that such installations are the most dangerous of all types, many of them being extended into sleeping rooms of women and children. Some comprise literally thousands of feet (even miles) of tubing and contain hundreds of pounds of irritant refrigerant.

The code, as it now stands approved by the Sectional Committee, covers the minimum requirements regarded by the committee as necessary to reasonable safety. The demand for change comes from a very small minority of the committee which has been persistently opposing the enactment of any and all codes in this section of the country that will place the slightest restriction or prohibition on their apparatus, systems or methods of installation.

This small group, I am told, failing to obtain the approval of the Underwriters' Laboratories on their Multiple Systems, succeeded in influencing the National Board of Fire Underwriters to draft and approve a code meeting its views. I am further told that this Underwriters' code is now being used to influence the A. S. A. committee to do violence to its recorded judgment by substantially adopting a code which the very proceedings of the committee show to be, in its opinion, unsafe.

The difficulty with the A. S. A. Committee procedure on this code is that, while it is called a safety code, the attempt is being made to make it a commercial code, and between those who want a safety code and those who want a commercial code and those who, for the sake of doing things in the easiest way, are willing to compromise between the two, there is a state of confusion and indecision and it is self evident that any compromise permitting one or more systems in a building, each containing 100 lbs. of a refrigerant, is a victory for the commercial interests which are willing to subordinate safety to profits.

A commercial code has no place in the A. S. A. under the title of "Safety." Such a code may be drawn up by a commercial organization, such as the National Board of Fire Underwriters, and no serious harm result, because everyone would then know that the code is commercial. When the A. S. A., however, under the guise of safety, approves an acknowledged unsafe code, it is subverting its purpose and violating its trust. It would be better for the A. S. A. to adopt no code than to compromise its standing by placing its stamp of safety on the proposed new section. There could be no better way of destroying public confidence in an organization such as the A. S. A.

In putting out this code, it is understood that the A. S. A. is undertaking to protect the public rather than cater to commercial profits and there should be no compromise in it that would sacrifice safety to commercialism.

If a bootlegger tells me to drink his whiskey, I am not impressed, but if my doctor tells me the bootlegger's whiskey is safe, I accept his word for it. The A. S. A. is the "Doctor" for the public, not an agency for shielding the manufacturer from liability for putting out hazardous equipment.

If a commercial code is wanted, let the manufacturers get together and frame it and put it out under its correct name. Then they are responsible; but let us not be fooled into relieving the manufacturer from his proper responsibility by putting the A. S. A. stamp of approval on such code as a "Safety Code."

EDWARD T. WILLIAMS
c/o Servel, Inc.
51 E. 42nd Street,
New York, N. Y.
Jan. 10, 1929.

Mr. F. M. Cockrell, Editor,
Electric Refrigeration News,
550 Maccabees Building,
Detroit, Mich.

Dear Mr. Cockrell: Enclosed herewith is a memorandum entitled "Commercial vs. Safety Code" to which your earnest consideration is invited.

I am expressing my views in this general manner as I find it necessary to go South for an indefinite period on account of illness and therefore may not have an opportunity of being heard on this question when it is presented for the action of the Sectional Committee.

The regulations that may be adopted for Multiple Systems will undoubtedly have a far-reaching effect on the Mechanical Refrigeration Industry and should have full and free discussion in open meeting by the entire Sectional Committee.

Very truly yours,
E. T. WILLIAMS.

ETW/ET

MARKET EQUIPMENT GETS BIG DISPLAY AT ENGLISH EXHIBIT

Kelvinator and Frigidaire Have Many Models on Hand

The meat market had its share in equipment displayed at the Smithfield Club Show in England, according to *Cold Storage*. It voices the opinion that the refrigerated equipment displayed must have filled every conceivable need of the retail butcher.

Kelvinator, Ltd., displayed a 300 cu. ft. cold room operated by a three-quarter h. p. condensing unit. The article says, "Display counters working in conjunction with Kelvinator refrigerating units received considerable attention as a means of obtaining attractive display without loss or waste."

Thomas Hall & Son, Ltd., displayed units for refrigeration of rooms from 90 to 800 cu. ft. capacity. Wm. Douglas & Co., Ltd., displayed general equipment for the butcher as well as refrigerating plants. One refrigerating plant of 300 cu. ft. capacity was of tiled finish. Compressors for stores up to 1,400 cu. ft. capacity were displayed.

The Lightfoot Refrigeration Co., Ltd., displayed the Lightfoot "Ellarcold" machines with automatic control. The models ranged from one-quarter to 4 h. p., suitable for cold rooms ranging from 16 to 4,000 cu. ft.

A 250 cu. ft. cold room, tiled inside and out, and fitted with meat hanging rails was displayed by Graham Enock. The Pulsometer Engineering Co., Ltd., showed two working models operating a chilling chamber and a quick freezing room.

An air-cooled Hallmark model was displayed by J. & E. Hall, Ltd. "Marbolike" finish for the interior lining of cold chambers was shown by the Smithfield Refrigerator Co. A butchers' sectional 235 cu. ft. cabinet, fitted with triple plate glass, was featured by Robert Boby, Ltd.

Frigidaire, Ltd., exhibited many sizes and models of refrigerated display cases, freezer counters, and cabinets. Ernest West and Beynon, Ltd., displayed the London-made "Verikold" small automatic unit. A complete two-cylinder entirely automatic unit was shown in operation by A. G. Enock & Co., Ltd.

DISCUSSES PROBLEMS OF AIR CIRCULATION IN MARKET COOLERS

(Concluded from Page 6, Column 5)

be determined until the flue varied more than an inch from the other. In such cases the results were generally quite unsatisfactory. It stands to reason that the same amount of air that passes into the warm air flue must come out of the cold air flue, and consequently they should be about the same size. If a decided slope can be effected in the bunker floor, so that a real funnel shape cold air flue can be obtained, then the cold air flue should be about 80 per cent the size of the warm air flue. This is because the cold air will fall through this shaped flue much faster than it can easily flow across the ceiling into the warm air flue.

A refrigerator should have about one inch to an inch and a half opening of flue for each foot of internal width. A box six feet wide should have flues not less than six inches in width and not more than 9 inches in width.

The happy medium of an inch and a quarter will undoubtedly give the best general results for all purposes. The size of the mechanical equipment or amount of ice that may be used will greatly determine the amount of temperature to be obtained.

Mechanical refrigeration should have a different bunker arrangement for coils or brine tank than for ice. This is because with ice a slow contant pour of air seeping out of the cold air flue is desirable, so that the ice does not melt took quickly giving very cold temperatures while rapidly melting, and warmer temperatures when the ice has decreased in size. But with mechanical refrigeration it is desirable to get the air over the coils and down into the refrigerator at a much faster speed, giving the mechanical unit a higher operating efficiency, and the box a lower temperature.

A refrigerator that has been designed to take ice in the bunker can easily enough be adapted to take a mechanical unit.

Some altering of the bunker is quite often desirable. A larger cold air flue generally helps materially to increase the air circulation, and prevents the mechanical unit from delivering too dry an air into the refrigerator.

The coils should be hung as high as possible in the bunker, about a half inch below the top of the warm air baffle. If the coils are hung above the baffle, they will chill the warm air before it falls through the bunker, and cause condensation on the ceiling of the refrigerator.

If the coils are hung several inches below the top of the baffle, they have twice as much difficulty getting the warm air to and over them, causing them to frost heavily and lose in efficiency.

There is little chance of any condensation appearing on the ceiling of a refrigerator when the coils are properly hung, the bunker with proper slope, and well constructed warm air baffles.

Air circulation also tends to carry odors and impurities from the food compartment into the bunker compartment, where they are generally deposited on the coils.

Air circulation should bring the warmest air to the coil and do so in a smooth, direct manner. Any impediment in the warm air flue will slow up the whole cycle of air circulation.

Air circulation should keep the meats and foodstuffs cold, properly moist, preventing shrinkage and spoilage, and keep the foodstuffs in a salable condition for a maximum length of time. This permits top prices for foodstuffs properly refrigerated and quickly pays for the best there is in refrigeration.

Air circulation is as vital to the preservation of foodstuffs as it is to our lungs. We require fresh pure air of proper humidity. So do the foodstuffs kept in refrigerators and refrigerated cases.

PRINTERS' INK REVIEWS TREND IN THE ELECTRIC REFRIGERATION FIELD

An article on "What Is Happening in Electric Refrigeration?" in the Dec. 27, 1928, issue of *Printers' Ink*, says, "When it is considered that the household electric refrigerator was news to the public as recently as 1925 it must be said that, as an industry, electric refrigeration has made remarkable strides as a merchandiser."

ELECTRIC REFRIGERATION NEWS is quoted for historical data, giving the basic patents issued fifty years ago. It credits the rumor of approval of the product by the public utility companies as starting the activity in the industry.

Sales for 1928 are estimated at 500,000 units. The article points to General Electric Co. as the surprise of the industry and reviews reasons given for its success. Among the reasons given are the coming on the market only after the company considered they had a fool-proof article; the enthusiasm of the company's founder, Charles A. Coffin; the merchandising of the product through a separate and distinct department; the service feature which is based on the easy removal of the entire machinery unit; the aggressive advertising policy, and the directing of business through the distinct specialty dealer.

The article closes by a prophecy that the sales figure for 1929 will exceed that of 1928 and that newcomers in the field will have a share in this figure.

LASSEN —TEMPERATURE— —PRESSURE— CONTROLS
POSITIVE RANGE AND DIFFERENTIAL ADJUSTMENT
NON-DETERIORATING MERCURY TUBE SWITCH—MEET ALL REQUIREMENTS
GOODNOW & BLAKE MFG. CO. 3840 BEAVER STREET DETROIT, MICH

Electric Refrigeration Accessories
For All Machines
Can Lifters | Gaskets | Rim Seals
Monel Cleaner | Gauges | Rubber Hose
Brass Fittings | V Belts | Thermometers
Carbon Brushes | Motors | Rubber Breaker Strips
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Lightweight, Sturdy, Efficient, Brine Pump
Valves and Copper Tubing in Accordance with New Fire Underwriters Code
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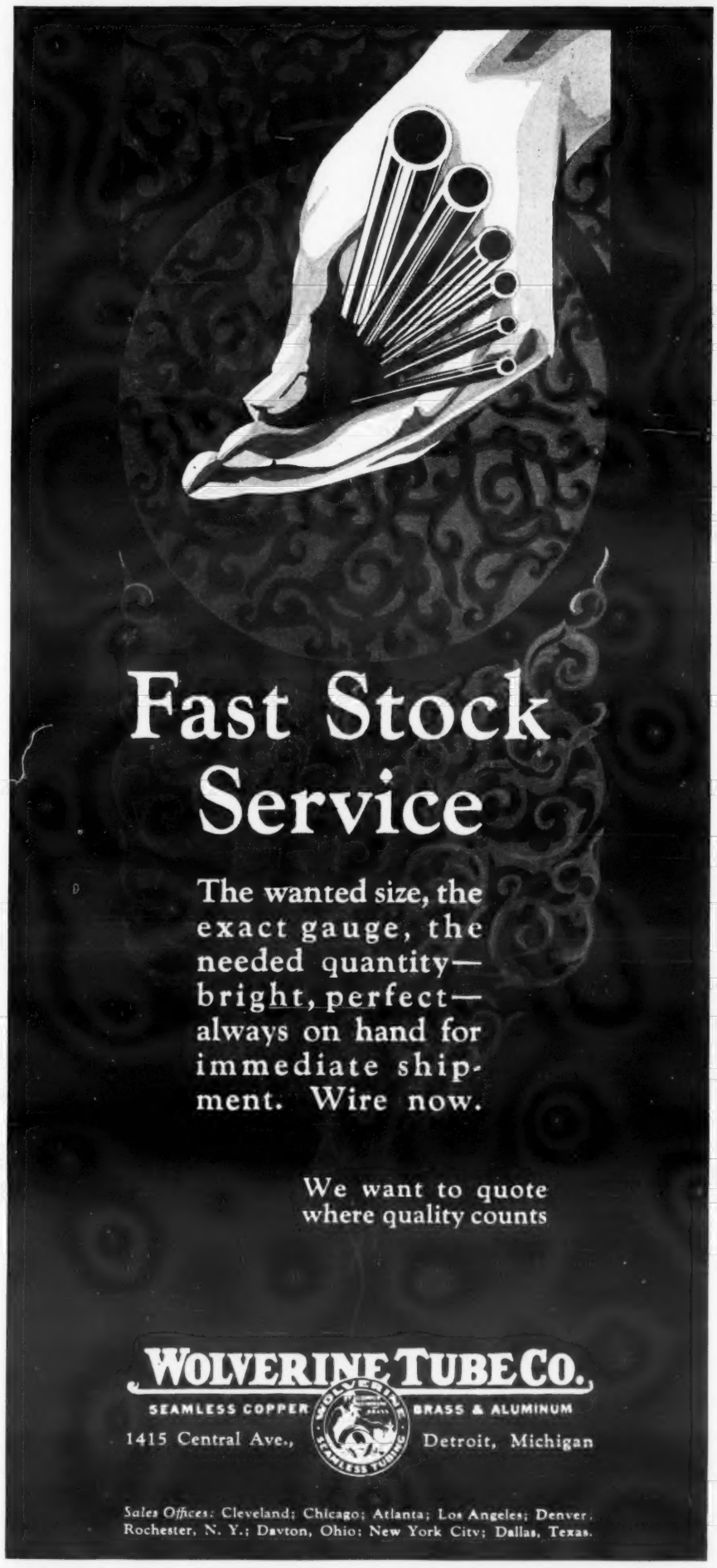

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The wanted size, the exact gauge, the needed quantity—bright, perfect—always on hand for immediate shipment. Wire now.
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SEAMLESS COPPER BRASS & ALUMINUM
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Sales Offices: Cleveland; Chicago; Atlanta; Los Angeles; Denver; Rochester, N. Y.; Dayton, Ohio; New York City; Dallas, Texas.

KULAIR COMMERCIAL CONDENSING UNITS
For Use With Any Practical Cooling Unit
Low, Medium or High Speed
Multiple or Single Unit Hookup
Sulphur Dioxide or Methyl Chloride
A sensible policy product and price
Awaits your inquiry
Write for it
KULAIR DIVISION
FRANKLIN AIR COMPRESSOR CORPORATION
NORRISTOWN, PA.

No. 3000 Air Cooled 9942 BTU per
Smaller Sizes to ¼ Horse Power.

Special Dry-Kold Display Cases Modernize South Bend Fish Market

The South Bend Fish Co., South Bend, Ind., uses three special 12′ Dry-Kold fish display refrigerators with white opaque glass bases and black glass baseboards. The display portion, shown in the above photograph, is of polished Monel Metal with three thicknesses of glass set airtight. The fish are displayed on ice. Extra cooling is supplied from Monel Metal brine tanks extending across the rear in which direct expansion coils are submerged. A fish cleaning stand made up of a white opaque glass base and Monel Metal shield is shown at the rear.

Incense and Electric Refrigeration Mingle Profitably for the Owner Of a Cheyenne, Wyo., Gift Shop

By Willis Parker

HARRY C. KLEIN, who operates a gift shop in Cheyenne, Wyo., finds that electric refrigerators not only lend themselves excellently as giftware but that they are also profitable to handle, not especially as a side line but as an active, pushable article of merchandise.

The average dealer in electric refrigerators finds it profitable to ring door bells. Klein rings no door-bells, yet he sells as many refrigerators as he would if he did. He uses his gift merchandise and giftware atmosphere of the store to uncover prospects.

Feature, if you will, the intriguing, tantalizing, soothing perfume of incense burning in the close vicinity of a display of electric refrigerators!

But, seriously speaking, the two lines of merchandise work well together. Hundreds of persons visit the gift shop every week in search of tally cards, party favors, candles for the dinner table as well as gifts. Isn't it reasonable to suppose that the hostess who is seeking place cards and table decorations of other varieties will be interested in anything that pertains to the keeping and the serving of food products? Isn't it reasonable to suppose that she will be glad to learn about the excellent frozen desserts that she can prepare in her own electric refrigerator, and the neat little ice cubes which she can freeze with a bit of coloring matter in the water to give a unique appearance to the cubes when they are placed in glasses of water or other beverages?

Mrs. Hostess is in the mood, she is thinking about her entertaining problems, and the chances are nine to one that she is more susceptible to sales arguments under these conditions than when she makes a call at the sales room of an electric refrigerator dealer or when the dealer's salesman rings her front door bell.

Hence it is mighty easy for Mr. Klein and his sales folks to get the names of visitors who comment upon the fact that the firm is handling this new line of merchandise or who drop some remark relative to the desire to have such an appliance in their kitchens.

The floor arrangement of the store and the placing of the display windows lend themselves admirably to this sort of a combination. The store occupies a corner that is 49 feet wide and 59 feet long. The entrance is in the corner. The electric refrigerator department is to the right of the incoming visitor and down the length of the store on the right hand side. The other giftware merchandise is to the visitor's left, and the displays begin on tables that extend down the middle of the store.

The first thing that the incoming visitor's eye catches as she steps over the threshold is the display of electric refrigerators which are set back far enough from the door to give the proper perspective. This makes use of the theory of one dealer in refrigerators who asserts that the goods should be shown the prospective customer first when at least ten feet separates them. This is because the average customer wants to visualize the article in her own kitchen; wants to get the effect as she steps into her own kitchen and sees the electric refrigerator with its glistening exterior on the other side of the room.

Two outside salesmen handle the prospects uncovered by the clerks in the store. Mr. Klein, himself, handles "hot" prospects in the store. He has a rule that none of his sales folk endeavor to sell, or to explain, merchandise about which they are not fully familiar. If he or the refrigerator salesmen, who might be in the store at the time, are busy, the sales people are expected to hold the attention of the prospects until they can be handled by persons familiar with the merchandise.

The appliances may be purchased at Klein's on terms, if the purchaser desires, but Klein handles his own paper and the terms he offers are slightly different from the average. He accepts a down payment of as much as the purchaser can make and then charges 8 per cent interest on the unpaid balance. The customer is fully cognizant of the interest charge and he is urged to pay off the obligation as fast as he can. It must be paid off in 12 months at any rate.

KELVINATOR, ELECTROLUX AND FRIGIDAIRE SHOWN AT ENGLISH HEALTH CONGRESS

Kelvinator, Electrolux, and Frigidaire units were displayed at the Public Health Exhibition and Congress held recently in England. In describing the exhibition, *Cold Storage*, in the issue of Dec. 20, 1928, says: "No exhibition dealing in any way with the problems of public health could be considered complete if refrigeration equipment did not form an important part of the display. The attention which is being focused on this aid to pure food and better health was reflected at the recent Public Health Exhibition and Congress."

The display of Kelvinator, Ltd., is described as varying in range from 5 to 1,000 cu. ft. capacity models.

Electrolux, Ltd., exhibited three models, the "Baby" cabinet; the "Kitchen" model, the top of which forms a table, and the larger "Household" plant, which is capable of making ice as well as cooling foodstuffs.

Frigidaire, Ltd., displayed cold rooms and cabinets. The G13 model, embodying both display and refrigerating qualities, was prominent. The meat served by the Exhibition restaurant was kept in a 150 cu. ft. model.

To Produce for Dry Ice Corp.

Dry Ice Corp. has signed contracts with the Carbide and Carbon Chemicals Corp., subsidiary of the Union Carbide and Carbon Corp., and the Liquid Carbonic Corp., whereby Dry Ice is to be produced at the various plants of these organizations, according to the *Financial Chronicle* of Dec. 29.

H. E. Spencer Named G. E. District Manager for South Texas

H. E. Spencer, of Dallas, Tex., has been appointed district manager of supervise the distribution of General Electric refrigerators in southern Texas. He will establish headquarters in San Antonio where he will organize a sales and service force.

The first gas was manufactured by John van Helmont, Flemish alchemist, in 1609 A. D.

M.&W.Co. 1876 LACQUERS ENAMELS

A Lacquer Finish that Has Stood the Test

M & W REFRIGERATOR LACQUER ENAMELS

A Quality Reputation on these products has been established through actual large quantity production on Cabinets widely distributed throughout the world.
Another complete M & W Finish including either Lacquer or Oil Primer followed by M & W Lacquer Enamel in White or Colors.
We invite your correspondence regarding your particular problems.

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LOS ANGELES OFFICE AND WAREHOUSE 1212 Venice Blvd., Los Angeles, Calif.

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ANHYDROUS SULPHUR DIOXIDE

Universally used in the production and servicing of refrigerating machines.
Prepared for direct charging, with absolute protection afforded by complete laboratory analysis of each cylinder, large or small.
Exceptional dryness maintained as an additional safety factor
Ten sizes of cylinders from 2 lb. to 150 lb. capacity.

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MARINETTE, WIS.

Canadian Distributor
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Modesto, Calif.

WITHOUT EXCEPTION

·DRY·ZERO IS SUPERIOR IN EVERY VITAL CHARACTERISTIC·

INEVITABLY industries progress. The manufacturers of refrigerators have improved the appearance of their product. They have all added beauty, convenience, finish . . . but until the advent of Dry-Zero there was little advancement in insulation—the ultimate *performance* for the customer.

Dry-Zero is the most efficient insulant known . . . 25% to 40% more effective than any type in common use. This is publicly corroborated by tests made by the U. S. Bureau of Standards and other nationally known authorities. It is the lightest in weight—free from odor troubles and will not lose efficiency over a period of years.

Without exception, Dry-Zero is superior in every vital characteristic. Test after test by unquestionable and impartial authorities have revealed its marked advantages. It has made possible new savings in cost of refrigeration . . . it has lowered shipping costs—and has actually retarded to the greatest possible degree the penetration of heat.

It is, therefore, only logical, that the truly modern refrigerating unit should be Dry-Zero Insulated. Let us send you samples to test. Let us assist you in your problems and prove, as we have to so many others, that the choice of an insulant is not a matter of opinion, but of scientific fact.

The Dry-Zero Pliable Slab is easily installed and hermetically sealed in a single operation by pressure alone, due to the specially designed and patented sealing flange, found only in Dry-Zero. There is no waste or loss of time or labor. Dry-Zero will not swell, crack or settle.

DRY-ZERO CORPORATION
130 North Wells St. CHICAGO, ILL.

DRY·ZERO

FOOD PRESERVATION HOLDS INTEREST OF BRITISH AT OLYMPIA

Refrigeration Exhibits Show Large and Small Machines and Cabinets

THE Cookery and Food Exhibition, held in November at Olympia, London, England, seems to have been given a slogan by its sponsors by amending an old proverb into "Having caught your hare, put it in a refrigerator before you cook it," says *Cold Storage* of Dec. 20, 1928. In this article it is pointed out that only during the last few years has the conditioning and preserving of food before and after cooking, been reflected in this annual exhibition.

The refrigerator exhibits are described as ranging from the smallest domestic sizes to the largest commercial plants of a portable character. In describing the displays the article says, "a 30-ton compressor on the stand of Messrs. J. and E. Hall, Ltd., looked like a leviathan among a number of Hallmark refrigerators made by the same firm. One Hallmark cabinet, which was exhibited for the first time, has an internal capacity of 90 cu. ft., and is suitable for hotels, clubs, hospitals, and schools. While the outside is oak grain, the inside has a crystalline metallic finish. Shelves or hanging spaces are fitted according to requirements.

"New ranges of domestic and commercial refrigerators were on view at the stand of Frigidaire, together with a 10-ft. display provisions counter, cooled by a one-half h. p. unit. Much attention was attracted by a Frigidaire 3-hole ice cream freezer and storage cabinet, which can make eight gallons of ice cream a day.

"The exhibits of Electrolux, Ltd., included a refrigerator similar to that recently supplied to Buckingham Palace. Samples were also shown of the bulk orders recently placed with Electrolux, Ltd., by Messrs. J. Lyons & Co., Ltd., the Express Dairy Co., Ltd., the United Dairies, Ltd.

"A typical domestic model was shown on the stand of the General Electric Co., for which the sole agent in this country is the British Thomson-Houston Co., Ltd." A 9½ cu. ft. model was also shown.

"Ice cream freezers of the Reliance type were exhibited by Messrs. Condrup, Ltd. Most of them are operated by hand, but there is one model worked on a belt drive from any available motor.

"Mechanical refrigeration applied to soda fountains was demonstrated on the stand of Messrs. Flugel & Co., Ltd. The exhibits included a four-flavor fountain to fit any existing counter. A similar four-flavor fountain, fitted complete with a three-foot counter, contained an insulated two-hole ice cream cabinet, soda water cooler, etc. The exhibits showed the great developments that have recently been made in this department of refrigeration.

"The principal exhibit on the stand of Messrs. Sulzer Bros. was a complete working ammonia compression refrigerating plant cooling a cold store of 350 cu. ft. capacity with a daily ice output of 100 lbs. The compressor was of the vertical single-acting type, fitted with special spring disc valves. The cold chamber used in connection with this exhibit was constructed by the Armstrong Cork Co., Ltd., and was equipped with Jamison cold storage doors. Other Sulzer refrigerating equipment on view consisted of a large size ammonia compressor, and also the various component parts of the compressor manufactured by this firm.

"Messrs. L. Sterne & Co., Ltd., had on show a working exhibit consisting of a 150 cu. ft. cold room fitted with shelving, meat rails, etc., working in conjunction with a small automatic, electrically-driven compressor, which was mounted on a combined bedplate with a multi-tubular condenser. Also on view were the eight-ton type 2 U compressor, and the 1 T model, which has a refrigerating capacity of 1½ tons at 600 r. p. m.

"Messrs. P. W. Taylor & Co., Ltd., had on view for the first time a soda fountain fitted with the ice stove refrigerating unit. The Taylor fully-automatic ice cream storage and hardening cabinet was also demonstrated in operation, being cooled by a Freezone compressor and maintaining three different temperatures.

"Features of the display of Messrs. Wilson's Soda Fountains, Ltd., were several portable soda fountains and the 'Iceland' ice cream freezer.

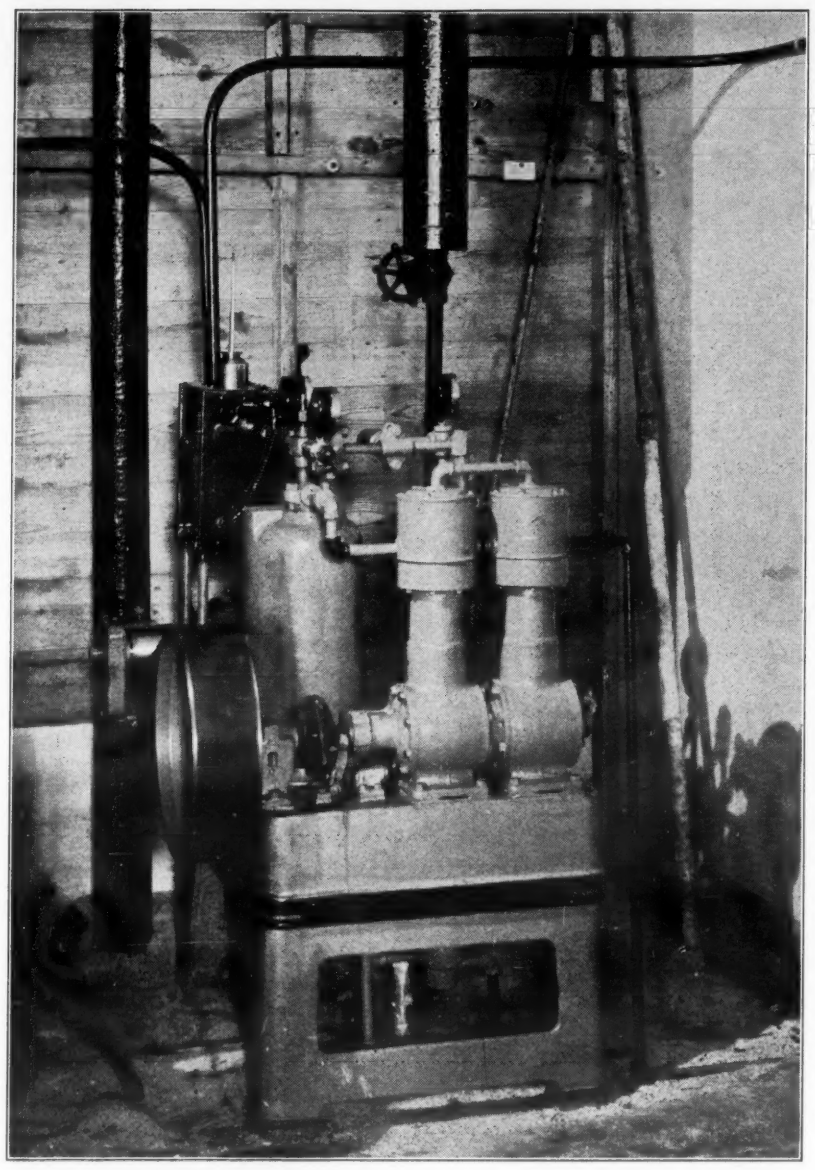
"Messrs. L. Lumley & Co., Ltd., had a wide range of soda fountain and ice cream equipment displayed. The Invicta iceless freezer was exhibited.

"The stand occupied by Messrs. Sage & Co., Ltd., former one of the most interesting displays." It showed a refrigerated display counter in which the air contained between the plates of the double glass front had been treated to avoid glazing.

"Messrs. Kelvinator, Ltd., displayed various types of cabinets and cold frames operated by their well-known automatic electric refrigerating units. Included were one of the latest type refrigerated display counters, a 150 cu. ft. cold chamber, and a 40 cu. ft. commercial cabinet.

"Marco Refrigerators, Ltd., exhibited a range of both ice-cooled and electrically operated refrigerators. One cabinet had a capacity of 58 cu. ft. and was used for storage of a special display of meats."

One-Ton Lipman in Dallas Market Effects Substantial Savings



Budd Bros., Dallas, Tex., have found unexpected advantages arising from the installation of electric refrigeration in their meat market. The compressor, a Lipman 1-ton model manufactured by the General Refrigeration Co., Beloit, Wis., is shown above.

In describing the installation the proprietors write: "This machine maintains a temperature of 38 degrees in one 8'x6'x 11½ upright cooler, one 13½' Frederick freezer case, and one 14' McCray display case. This temperature could be lowered, if we so desired, with very little additional cost; however, we find this temperature gives perfect satisfaction."

The letter continues, "During the months of November and December, the total cost of operating this machine was $36.93, as compared with the cost of ice for the same two months of last year of $82.15. We consider this machine the best investment that we could have made from the standpoint of cost and convenience, to say nothing of the more sanitary conditions of the cases, which fact has been repeatedly brought to our attention by our customers."

FRIGIDAIRE FOREMEN'S CLUB AT DAYTON HEARS ADDRESS BY GENERAL MOTORS EXECUTIVE

Floyd A. Allen, New York City, assistant to Alfred P. Sloan, president of the General Motors Corp., addressed 400 members of the Frigidaire Foremen's club and their guests at a dinner held at the Moraine plant in Dayton, Ohio, on Jan. 8, on the subject "General Motors."

Besides the Frigidaire Foremen at the meeting, executives from other General Motor subsidaries in Dayton were present. Mr. Allen later addressed Frigidaire service men at a dinner held at the Miami Hotel.

R. L. Matthews Joins Chicago Sales Force of Wagner Electric Corp.

The Wagner Electric Corp., St. Louis, Mo., announces that R. L. Matthews has joined the sales force of its Chicago office. Mr. Matthews has been formerly connected with the Michigan Bell Telephone Co., the Armstrong Cork & Insulation Co., and the National Electric Products Corp.

Large Springfield Apartment Installs Frigidaire

A new apartment hotel, The Stonehaven, Chestnut Street, Springfield, Mass., having 116 apartments, is being equipped with Frigidaire. The installation is operated by eight Model "C" compressors. This is reported to be the largest installation of its kind made as yet by any refrigeration concern in Western Massachusetts.

FRIGIDAIRE OPENS NEW DISPLAY SALON IN SAN FRANCISCO HOTEL BLDG.

On Dec. 15 Frigidaire Corporation opened a new display salon for domestic equipment at 475 Sutter street in the Sir Francis Drake hotel building in San Francisco. Twenty-five thousand invitations were sent out for the opening and space was taken in the daily newspapers.

Large crowds visited the salon on the opening day, and Christmas week proved to be one of the best weeks for business in the entire year. The new salon, which is in charge of R. W. Douglas, is located on "Refrigerator Row." Hot & Cold, Kelvinator and Copeland occupy fine quarters on Sutter street in the same block and General Electric is in new quarters on Stockton near Sutter, about a block away.

The new Frigidaire display salon is a beautiful and well planned show room, having the entire front finished in glass, which enables the attractive displays to be seen by large numbers of persons passing the store. The rear of the store is entirely of glass, permitting a view of the entire salon from the hotel arcade. This feature alone has resulted in three large sales to guests of the hotel.

The salon is very artistically decorated in the Spanish style, and is equipped with floor plugs about every ten feet, which permits the plugging in of refrigerators displayed in any section of the room. The floor is covered with linoleum, while an immense rug is placed in the center of the main show room. A large center table and comfortable chairs are provided so customers may sit and view all models in the room.

The commercial equipment department remains at the old location, 871 Mission street.

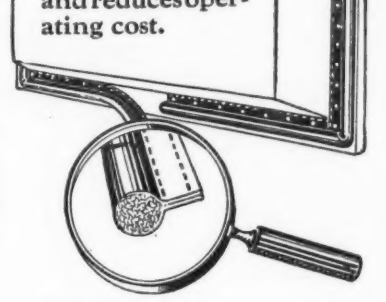
Electrolux, Inc., Opens Office in Springfield, Mass.

Electrolux, Inc., has opened an office in Springfield, Mass., with William E. Burton in charge. This is a sub-branch of Hartford, Conn., and will direct sales in Western Massachusetts territory. A store house soon will be opened in Springfield.

The leading refrigerator manufacturers are buying
BOSLEY'S
"Ice Saver" Gasket
for it is the best uniform quality insulation
Write us
The D. W. Bosley Company
1901 Carroll Ave. Chicago, Ill.

Make Sure—

Your door contacts are made tight with "Wirfs Airtite Gasket." It assures refrigeration efficiency and reduces operating cost.



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"AIRTITE" GASKET
Write for samples and prices, today.
E. J. Wirfs Organization, Inc.
135 S. 17th St. • • St. Louis, Mo.

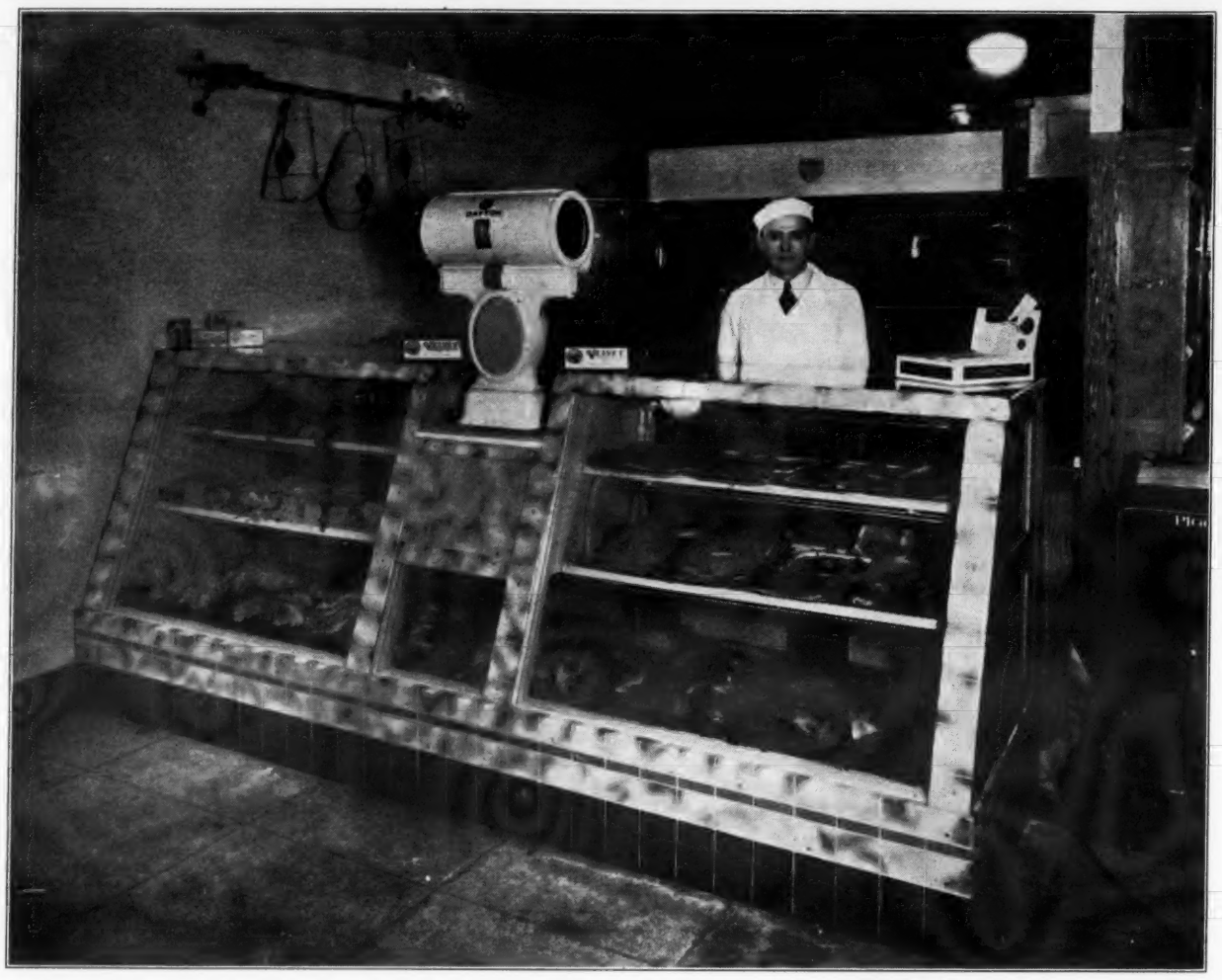
G-E CAPACITOR-MOTORS
Type RKS

The Refrigerator Motor of To-morrow—*Available To-day*

This new capacitor-motor was developed by General Electric primarily for use in its refrigerators. It has been called by competent authorities "the refrigerator motor of to-morrow". It has all the desirable characteristics of a polyphase, squirrel-cage motor. ¶It is a single-phase motor unusually quiet, compact, and substantial; with no brushes, no commutator, no collectors, with remarkable starting and pull-up torque; with very high efficiency; with very high power-factor; a motor that does not interfere with radio reception, a motor that operates reliably for long periods without attention. ¶These superior features are being demonstrated every day by the thousands now in use. Be sure to get complete details from your nearest G-E office.

210-77B
GENERAL ELECTRIC
GENERAL ELECTRIC COMPANY, SCHENECTADY, N. Y. SALES OFFICES IN PRINCIPAL CITIES

Los Angeles Market Installation Features Compact Display and Storage Facilities



The Super-Cold display case and cooler pictured above were installed in a Piggly Wiggly store in Los Angeles by the Commercial Refrigerator Manufacturing Co. of Los Angeles, Calif. The meat department is owned and operated by F. A. Weaver. The case and wall cooler are refrigerated by a 1½ h. p. Kelvinator compressor.

A Plea for Engineering Methods In Insulation Specifications

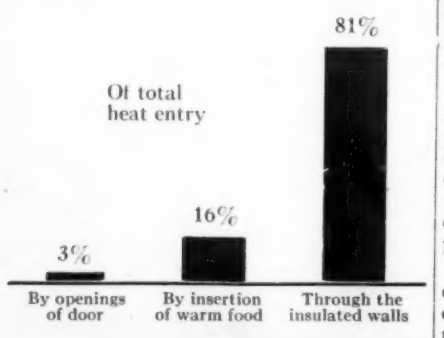
By Harvey B. Lindsay, President,
Dry-Zero Corp., Chicago, Ill.

IN designing modern machinery or operating units of any kind—particularly in the case of standardized quantity production—the specification of materials to be used is of the most vital importance. Each material that has an important duty to perform is chosen by the definite engineering knowledge of the value it delivers—tensile strength, elasticity, non-corrosion, etc. These values have generally been established by recognized, impartial authoritative tests, and afford clear cut engineering data of performance.

Into the manufacture of mechanical refrigerators a wide variety of materials enter. Careful specifications based on definitely formulated knowledge of performance have been applied to the materials used in the refrigerating machine; steel, for motive parts, that has a definite value of tensile strength, rigidity, etc.; bearing metal that yields a tested standard for its duty; packings, cooling coils, valves—the materials for each part are specified on clear engineering data of the efficiency each such material actually yields. The result is performance.

But the mechanical refrigerator is a duplex product—a "two in one" article of commerce. After all, the sole function of the machine is to transfer to the outer air, heat that enters the cabinet. Granted the machine well built and efficient, it is true—in fact obvious—that the governing factor of total efficiency of the mechanical refrigerator is the speed with which heat is allowed to enter the cabinet.

To show the dominant part that insulation takes in this overall efficiency of performance the following analysis of total heat entry into a cabinet insulated with 2" of a material of 3.33 insulating value coefficient (Conductivity of .3 b. t. u. per sq. ft. per 1" per 1° per hr.), while such a cabinet is in average family use:—



While these percentages are affected by excessive use of ice cubes or frozen desserts, it appears that the above figures have been generally accepted as the fair average.

That 81% then is the controlling factor of actual performance of that mechanical refrigerator, as far as the public is concerned.

The vital importance of insulation efficiency supplied is at once obvious. It more than justifies the suggestion that the specification of insulating material should be governed by the same engineering methods as govern the other vitally important materials entering into this duplex product.

In short, insulation for the cabinet should be specified and purchased on its actual insulating value. Such values for all the commercial insulants are definitely established by authorities beyond question, as are their other necessary characteristics—moisture absorption, rot and odor, physical permanence, etc.

When coefficients of insulating value of various insulants used in refrigerators range all the way from 4.35 down to 2.7, and comparative moisture absorption from 14 to 113, where is the logic—or the hard-headed business sense—in specifying such and such *thickness* of any of several insulants which vary from 25% to 40% or even 60% in insulation value?

With various makes of the refrigerating machine approaching perfection, the insulation of the cabinet has become the outstanding factor in the performance of the mechanical refrigerator.

The public knows nothing about insulation per se, but it is becoming interested in increased performance—it is entitled to have it to the fullest extent possible within the necessary cost limits. And the distributor should be in a position to give it.

By specifying and purchasing insulation on the basis of its actual insulation value, the manufacturer is finding unexpected economy in terms of performance. In other words, he finds he can improve performance with no increase—often a decrease—in cost, or he can maintain his old performance at a marked decrease in cost.

These are the results of applying regular engineering practice and methods to one of the now dominant factors in mechanical refrigeration—the cabinet insulation.

The great bells of historic Notre Dame de Paris, which once were pulled by Quasimode, the hero of Victor Hugo's novel, "Notre Dame de Paris" are now rung by electricity.

E. T. L. Service for Domestic and Commercial Electric Refrigeration

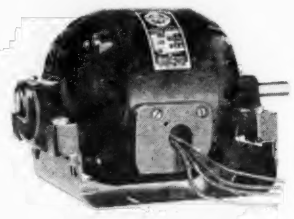
Testing and experimental laboratory service for Manufacturer, Distributor, Central Station
Test data exclusive property of client

ELECTRICAL TESTING LABORATORIES

80th Street and East End Avenue, NEW YORK CITY, N. Y.

Day-Fan
RADIO · MOTORS · FANS
PRODUCTS

R-I type Motor
Mounted on Cradle Base



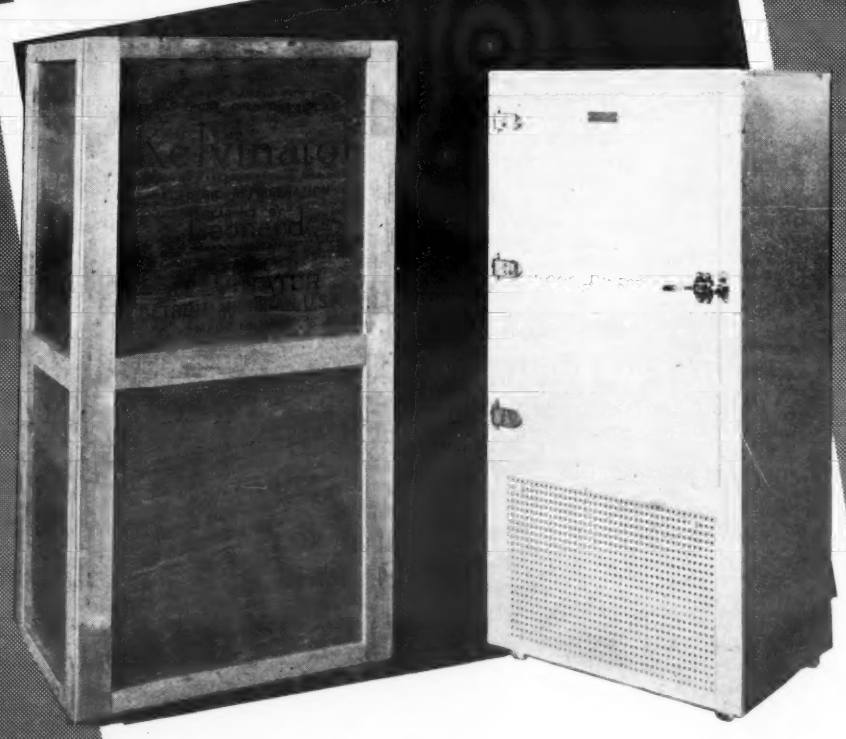
A sample test motor will be shipped to any interested manufacturer on request.

A motor that has proved itself on refrigeration applications.

A repulsion-induction motor is best adapted to appliances having a high starting torque where a minimum starting current is desired. Day-Fan repulsion motors have been most successful on refrigerating machines—efficient, quiet and dependable.

THE DAY-FAN ELECTRIC COMPANY
DAYTON, OHIO

ATLAS
REFRIGERATOR CASES



Refrigerator manufacturers who fully appreciate the advantage of getting units to their agents or dealers in top-notch condition, ship only in enclosing, protective ATLAS REFRIGERATOR CASES.

ATLAS CASES save time and labor; they advertise a product; and they offer unequalled shipping security. Damage claims are forgotten and dealers are more than pleased with the material freight savings effected.

Try ATLAS CASES on your next consignment.

Atlas Packing Cases
CARRY THE WEIGHT - SAVE FREIGHT
ATLAS PLYWOOD CORPORATION

General Offices
PARK SQUARE BUILDING, BOSTON, MASSACHUSETTS
New York Office, 90 West Broadway - Chicago Office, 649 McCormick Bldg.
Six Factories in New England, the South and Canada.
Branch Factories in Twelve Cities.

2543

KELVINATOR ISSUES ANNUAL STATEMENT

The third annual report of Kelvinator Corporation, Detroit, and its subsidiaries, for the fiscal year ending Sept. 30, 1928, showed a loss of $999,821.16. The statement issued to stockholders of the Corporation follows:

On behalf of your Board of Directors, there is submitted herewith the third annual report of the corporation for the fiscal year ended September 30, 1928. During this year the name of the Corporation was changed to Kelvinator Corporation, which ties up the corporate name with its principal, advertised, trade-marked product "Kelvinator" so favorably known over a period of fourteen years to the public using electric refrigeration.

The balance sheet and related statements as prepared by the corporation's auditors, Messrs. Ernst & Ernst, are included herein. The consolidated balance sheet does not include the assets and liabilities of Kelvinator of Canada, Ltd., (seventy-four per cent of whose common stock and none of whose preferred stock is owned by Kelvinator Corporation), nor does it include the Refrigeration Discount Corporation, all of whose stock is owned by Kelvinator Corporation. Kelvinator of Canada, Ltd., and its English subsidiary shows a small profit. Refrigeration Discount Corporation shows a profit for the year of $54,683.07 and its balance sheet and operating statement are submitted herewith.

Results from operations for the fiscal year ended September 30, 1928 show a loss of $999,821.16. The operating profit, before other deductions and interest was $199,485.95 which compares with an operating loss for 1927, similarly computed of $1,411,705.49. During the year just closed, manufacturing, selling and administrative expenses were greatly reduced. The decrease in selling, advertising, service and administrative expenses alone was $1,977,417.24. The Nizer ice-cream cabinet installations previously sold required the expenditure of several hundred thousand dollars for changes in design growing out of better understanding of the application of refrigeration for commercial purposes. The new ice-cream cabinet line, incorporating the latest development in refrigeration engineering was not ready for delivery until late in the season. These conditions affected the volume of sales of the Nizer ice-cream cabinet line, which decreased approximately $2,000,000 in 1928 from the Nizer sales of 1927. The sales of Kelvinator on the other hand increased.

Progress within the industry, affecting both the product and its application to automatic refrigeration needs in the field, has made it advisable for us to radically revamp our manufacturing procedure and to strengthen our organization. To meet this need, Mr. George W. Mason, who has had long experience in the electric refrigeration and automotive industries, came into our organization in December as Chairman of the Board and General Manager.

Your Board feels that many of the losses of the past year are a direct result of necessary changes in product from that of the past, and of the development of new designs following new knowledge and experience gained in an industry where all interested are continually applying the results of research. It was deemed advisable to provide as of September 30, 1928, ample reserves to meet the changed conditions and any losses which arise therefrom. Reserves have therefore been charged against surplus for the following purposes:

(a) For the reduction in book value of real estate held for sale and of the Carrier Division assets sold after September 30th—$722,510.19. The Carrier Division was sold in October, 1928 because the carrier business was not within the electric refrigeration field and it was felt that the money which could be realized from sale thereof would be more useful to the corporation as working capital. The old Nizer and Kelvinator plants acquired at the time of consolidation which have remained unused since moving into our new plant on Plymouth Road, are held for sale, and it was thought advisable to reduce the book value of these properties to a figure which would permit of ready sale.

(b) For elimination of deferred charges for development work and advertising, $198,599.72.

(c) For reduction in value of certain plant assets including tools and dies, in order that the plant assets might be carried in the balance sheet at a more conservative figure, $518,485.39.

(d) For contingent expenses, $200,000.00, which may possibly have to be paid in the future, though it is not expected in any case that the full amount provided herein will be required.

(e) For Inventory—Owing to conditions within the industry already cited, and the manufacturing changes already initiated and contemplated, it was felt that the inventory, although valued on the basis of the lower of cost or market, should have ample provision for any losses which might conceivably arise under this program, as well as for any general obsolescence. The amount necessary for this purpose cannot be accurately determined but your directors have arbitrarily provided an allowance of $1,750,000 which they deem adequate.

(f) As stated above, it is felt that many of the expenses of the current year were the result of prior years' operation, and it has seemed advisable, in the interests of providing protection that the coming year may not be charged with similar expenditures, to provide a reserve for contingencies of $500,000.

The new Kelvinator line of products now covers a broad and varied field of household and commercial automatic refrigeration, and new applications are being constantly developed. Each product has been carefully engineered, and is thoroughly modern. Our new Kelvinator line is quiet in operation and beautiful in design.

With the management greatly strengthened by the acquisition of Mr. Mason, with a fine line of products, with a working capital position sufficient to meet the requirements of the coming season, and with the conservative valuation placed upon the assets of the corporation, it is our belief that Kelvinator is in a position to successfully take its share of the automatic refrigeration market in the coming fiscal year.

By order of the Board of Directors,
C. K. WOODBRIDGE,
President.

Detroit, Michigan, January 5, 1929.

CONSOLIDATED BALANCE SHEET

KELVINATOR CORPORATION—DETROIT, AND SUBSIDIARIES, AT THE CLOSE OF BUSINESS, SEPTEMBER 30, 1928

ASSETS

CURRENT			
Cash on Hand and on Deposit		$ 230,385.97	
Notes, Accounts and Sight Drafts Receivable	$1,581,295.63		
LESS: Allowance for Doubtful	274,597.73	1,306.697.90	
Merchandise Inventories (At the lower of cost or market values)			
Raw Materials and Supplies	$2,864,476.86		
Finished Product and Service Parts	2,720,560.11		
	$5,585,036.97		
LESS: Allowance for Obsolescence and General Reserves	1,750,000.00	3,835,036.97	$5,372,120.84
INVESTMENTS IN SUBSIDIARIES (NOT CONSOLIDATED)			
Kelvinator of Canada, Ltd., (74% of Common Stock Owned)	$ 55,000.00		
Advances and Accounts with Above and its Foreign Subsidiary	311,623.35	$ 366,623.35	
Refrigeration Discount Corporation (100% Owned)		1,500,000.00	1,866,623.35
OTHER ASSETS			
Cash Appropriated for Repurchase of Gold Notes		$ 34,310.00	
Properties not Used in Operations or to be Sold		900,000.00	
Electric Refrigeration Building Corporation Notes Receivable (*)		1,987,614.71	
Miscellaneous Notes, Accounts and Advances		303,098.36	3,225,023.07
PERMANENT			
Land, Buildings and all Equipment		$6,132,380.94	
LESS: Allowance for Depreciation, etc.		1,820,117.78	4,312,263.16
PATENTS, GOOD WILL AND DEVELOPMENT			828,032.56
DEFERRED			
Prepaid Taxes, Insurance and Expenses		$ 243,450.16	
Inventories of Office and Advertising Supplies, Improvements to Leased Properties, etc.		74,887.12	318,337.28
			$15,922,400.26

* Electric Refrigeration Building Corporation is the owner of the Plymouth Road, Detroit, plant which is leased by Kelvinator Corporation.

LIABILITIES

CURRENT			
Accounts Payable:			
Purchases, Expenses, etc.	$1,025,822.40		
Pay Rolls and Commissions	150,120.85	$1,175,943.25	
Accrued Expenses		231,308.11	$1,407,251.36
TEN YEAR 6% SINKING FUND CONVERTIBLE GOLD NOTES			
Authorized and Issued		$3,000,000.00	
LESS: Retired and Purchased for Retirement		301,500.00	2,698,500.00
RESERVES			
For Contingencies			702,339.29
MINORITY INTEREST			
Interest of Unexchanged Shares in Subsidiary Companies (105.24 Shares)			5,261.87
CAPITAL STOCK—NO PAR VALUE			
Paid-In Stated Value		$11,679,060.02	
Authorized.....2,000,000 Shares			
Outstanding.....1,126,820 Shares			
Unconverted Scrip Equivalent to..... 873.35 Shares			
Deficit		570,012.28	11,109,047.74
			$15,922,400.26

Note "A": The Company has a repurchase agreement with respect to any past due notes, contracts and accounts held by Refrigeration Discount Corporation.

Note "B": Kelvinator Corporation has guaranteed the sinking fund and dividend requirements on the $768,000.00 7% Preferred Stock of Kelvinator of Canada, Ltd., now outstanding.

Note "C": Contingent liability on Foreign drafts discounted and letters of credit outstanding—$133,957.39.

FLOWER CUPS MAKE ATTRACTIVE DISH

Arrange sections of oranges and canned peaches alternately in a sherbet glass, in petal fashion. Use strips of preserved ginger as leaves. Mix peach syrup and orange juice with 3 tsps. of lemon juice. Pour over fruit in glass. Place beneath element of electric refrigerator at least 12 hours before serving. Drop a red cherry in the center of the flower just before serving.

SURVEY REVEALS AVERAGE 2 PER CENT LOSS IN MEATS IS DUE TO DE-HYDRATION

A survey conducted by the Pierson-Larkin Refrigeration Corp., Atlanta, Ga., manufacturers of Larkin coils, of 100 merchants reveals that the average loss through de-hydration amounts to about two per cent. Where 5,000 pounds of meat are handled a week, this loss in weight would be 100 pounds—a straight loss to the merchant of about $20.00 per week, figuring on the average wholesale cost of meats, or about $35.00 if the loss is figured in the terms of the retail price. This information is contained in a catalog issued by the Pierson-Larkin company.

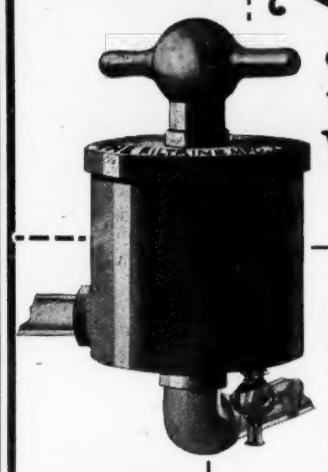
With vegetables stored in a refrigerated space overnight or for longer periods, there is always a drying out due to de-hydration. With the installation of vertical surface coils, however, vegetables regain some of the moisture they have lost through exposure to the open air, and when stored in a refrigerator over-night are in a better and more saleable condition when taken out.

In addition to the discussion devoted to defrosting, de-hydration and the advantages of Larkin coils, the catalog contains photographs of coils designed for market coolers, display, freezer, service and storage cases and florist coolers, along with a description of each.

General Electric's Orders Showed 13% Increase in 1928

Orders received by the General Electric Co. during the year 1928 amounted to $348,848,512, compared with $309,784,632 for 1927, an increase of 13%, President Gerard Swope announced on Jan. 10.

The orders for the December quarter amounted to $88,162,049, compared with $76,708,532 for the last quarter of 1927, an increase of 15%.



The Filter for use with every Water Cooler!

Safeguard your sales of electric water coolers by assuring clear, CLEAN water as well as COLD water!

Safeguard them with profit to yourself . . . sell a high-quality, high-efficiency water filter to every buyer of a water cooler.

FILTRINE Style 3 Filter

LIST PRICE $15.00

F.O.B. Brooklyn

Volume production makes this low price possible.

Specialists in Drinking Water Equipment.

Send us your problems.

FILTRINE Water Filters are especially designed for the electrical refrigeration trade by specialists in drinking water equipment. Their choice by leading manufacturers of refrigerator-coolers is convincing proof of their dependability and all-round superiority.

Sold at a volume-production price . . . backed by a gilt-edge guarantee.

Capacity 3-4 gallons per minute—ample for two fountains. Size—7" x 4 1-2" diameter.

The FILTRINE MANUFACTURING CO.
49 Lexington Ave. Brooklyn, N. Y.
Manufacturers of Coolers and Filters of All Sizes

Be sure to Read this Statement about

100% VERTICAL SURFACE

LARKIN COILS

FOR ELECTRICAL REFRIGERATION

LARKIN Aluminum Plate COILS, now available for Electrical Refrigeration WILL POSITIVELY ELIMINATE THE DE-HYDRATION—DEFROSTING and HUMIDITY PROBLEMS — CUT OPERATING COSTS — IMPROVE THE AIR AND REFRIGERANT CIRCULATION and INCREASE SALES for the Manufacturer and Distributor of Electrical Refrigeration Equipment.

There are 8 LARKIN Aluminum Plate COILS in our line. The above is one of 7 models made for Grocer and Institution use. Illustrations of the full line, with complete data will be found in our catalog.

These are mighty strong statements. We know they sound like a "fairy tale" to some folks—like manna from heaven to an industry which has lost countless sales because the above objections could not be overcome—these statements ARE FACTS proven by years of test. We know that in these low side units we have a major contribution for the Commercial end of the Electrical Refrigeration industry.

If you have read this far, and the few mentioned features of our coils have interested you, we welcome the opportunity to send you the complete story.

Our Catalog contains the Complete Story and PROOF!

Send this Coupon TO-DAY

Pierson Larkin Refrigerating Corp.,
519 Fair St., SE, Atlanta, Ga.

Please send me a copy of the Larkin Coils Catalog.

Name and Position .....
Company .....
Address .....
Address .....

PIERSON-LARKIN REFRIGERATING CORPN., ATLANTA, GEORGIA

THESCO
DISPLAY FIXTURES

Money-Makers for 59 years

Write for Catalog E-92 and full information.

THE C. SCHMIDT CO.
Est. 1870 Inc. 1907
John and Livingston Sts.
Cincinnati, Ohio

THE HOME OF THESCO PRODUCTS

Kelvinator Cross Fin Coils Refrigerate Display Cases in Philadelphia Market

Two display cases and a cooler in Ogden's Market, Philadelphia, are Kelvinator equipped. The cross fin coils may be seen in the back of the display case in the foreground.

A Knowledge of Merchandise Display is Valuable Aid to New Orleans Servel Salesman

Blueprint Submitted to Market Owners Suggests Layout for Cases and Coolers and Specifies Refrigeration Equipment

By R. A. Sullivan

IT is not enough that electric refrigerator salesmen merely sell electric refrigerators but they must also act in the capacity of merchandise display experts, if they are to be successful in selling refrigerators to butchers, grocers, florists, restaurants and other commercial outlets. That is the opinion of J. W. Davis, sales manager and engineer of A. Baldwin & Co., Inc., New Orleans, Servel distributors, who conducted a school for his staff of salesmen each day for ten days early this month. These sessions were in charge of Mr. Davis, who had arranged for talks by salesmanagers representing wholesale houses in the foodstuffs lines.

Mr. Davis said the reason behind this innovation in instruction to salesmen is to prepare for them a background of sound information on the proper display and methods of preserving foodstuffs and other perishable commodities. Mr. Davis believes that instruction along these lines will make his staff not only excellent refrigerator salesmen but that they will increase their usefulness to prospects by reason of their broad and technical training in the proper display of merchandise. Mr. Davis pointed out that diplomacy and tact are necessary on the part of the salesman because most merchants believe they know how to display their wares. But alert dealers who are aware of the changing conditions in retail methods and who are dissatisfied with their present volume of business very often welcome the outside viewpoint of men trained along display lines.

As an example of this novel plan of merchandising electric refrigerators, Mr. Davis points to the Colombia Market, 7222 Spruce street, New Orleans. The Colombia Market had served the neighborhood for years, but the growing competition of chain stores made it imperative for this market to utilize modern methods of merchandising if it were to continue in business. The owners studied the display methods employed by the various chain stores and drew up plans to follow in the remodeling of their market. The next step was to select an electric refrigeration system.

Mr. Davis got in touch with the Colombia Market, but before submitting prices tactfully broached the subject of rearranging fixtures and merchandise. This suggestion brought out the fact that the owners proposed to rearrange the store. Mr. Davis asked if he might be allowed to present them with a set of blueprints along this line, free of charge. At no point of the conversation during the first interview had price of refrigeration been discussed, Mr. Davis limiting his conversation to the subject of displaying merchandise in the most effective manner to appeal to the store's customers. In other words, he saw, and made the merchants realize that he saw, their problems. As a result of this interview, the owners told Mr. Davis they should be delighted to study any blueprints that he might care to submit.

When Mr. Davis returned to the store he showed the merchants a set of blueprints which they decided to use. The Colombia market today presents one of the most pleasing displays of merchandise of any independent retail grocery store in the city.

The market is now equipped with three units, two 30-A compressors and one 100-A compressor. A vegetable box and a grocery box each measures 89″ wide, 30″ deep and 75″ high. An electrcially refrigerated meat cooler is 12′ by 12′ by 12′. A display case maintaining a temperature between 30 and 34 degrees is used.

The temperature is regulated by two automatic controls; the meat cooler by a Mercoid thermostat; and the grocery and vegetable refrigerators by a pressure control which gives a variation of approximately four degrees, being so constructed that when the temperature falls to the desired point the refrigeration system is automatically stopped until the temperature rises four degrees, at which time the apparatus is again put into operation.

"Commercial installations, correctly made and properly followed up, prove to be benefits to our sales office," Mr. Davis said. "We have records on file in our office where prospects we had never called on came in and gave us their business simply on the recommendation of some retail dealer who had bought some of our units, and had praised them highly to friends in their line of business. This is good will of the highest order, but it cannot be obtained through excellence of product alone, but can follow only when the salesman, with his office backing him up, does more than merely sell an electric refrigerator. Good will of this type results only when salesmen are helpful in assisting the prospect to get best results, not only from his new electric refrigerator, but from the proper display of his merchandise. This latter phase cannot be possible unless the salesman has a background of technical training in merchandise display, and that is why we are conducting our school for electric refrigeration salesmen.

"The time has long since passed when the salesman may consider the deal closed as soon as the prospect's name is on the dotted line. He must prove himself useful through services that may, at first, seem foreign to the business of selling refrigerators. It is up to the salesman to make his customer pleased with the product he buys, because this builds good will, and without good will no company can succeed during this highly competitive age in which we live."

NORTHWESTERN OHIO SERVEL, INC., OPENS NEW DISPLAY ROOM

Northwestern Ohio Servel, Inc., opened its new display room at 371 Phillips Ave., Toledo, the middle of December. Forty-five domestic and commercial units were on display at the opening.

A domestic science department has been added and a school will be conducted two afternoons a week, one class at the office on Erie street, which has been retained, and the other at the new Phillips avenue display room.

M. P. Howes is in charge of Servel Sales in Toledo. Others of the personnel are Walter E. Hendricks, in charge of sales of Electrolux; W. R. Rothert, domestic electric refrigerators; R. S. Wenner, commercial refrigeration; C. W. Jeter, service department; Thomas P. Day, wholesale department and Willis F. Day, Jr., rental department.

Five New York Utilities Join in New Magazine for Employes

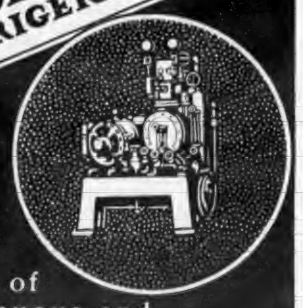
Five public utility companies in New York, the New York Edison Co., the United Electric Light & Power Co., the Brooklyn Edison Co., Inc., the New York & Queens Electric Light & Power Co. and the Yonkers Electric Light & Power Co., have co-operated in issuing a new publication which is devoted to the interests of the employees of the various companies.

It is entitled "Metropolitan Electric Topics" and the first issue was published on Jan. 1. This magazine contained 32 pages and sections were devoted to comments, sports, items of interest regarding the various companies, educational items and feature articles. It will be published monthly by the five companies.

Servel Sales, Inc., Announces Three Appointments

Servel Sales, Inc., has announced the appointment of J. P. McDermott as district sales manager in the Kansas City, Kan., district; R. M. Billhimer as district sales manager in Arkansas, Louisiana and Mississippi; and Frank P. Shea as district manager in the Cleveland district, with headquarters at Cleveland.

BRUNSWICK-KROESCHELL REFRIGERATION



32 years of continuous and successful application

Capacities: 500lbs. refrigerating effect and up, covering the entire field of applied refrigeration.

Refrigerants: Ammonia; Carbon Dioxide; Methyl Chloride.

BRUNSWICK-KROESCHELL COMPANY
Refrigerating & Ice Making Machinery
NEW BRUNSWICK, N.J. - CHICAGO, ILL.

McCORD BUILT Condensers

Type "D" Seamless Tube McCORD CONDENSER *with Individual Square Fins*
A compact, efficient unit employing a principle of radiation that has found favor among many manufacturers

Type "B" Spiral Fin *Continuous coil* McCORD CONDENSER
Another popular condenser made up of seamless copper tubing with continuous corrugated spiral fin giving great radiative capacity

Type "C" Spiral Fin Coil McCORD CONDENSER *with Seamless Headers*
McCord condensers are made in many sizes and shapes to meet the requirements of a wide variety of installations

McCORD RADIATOR & MFG. CO.
DETROIT MICH.

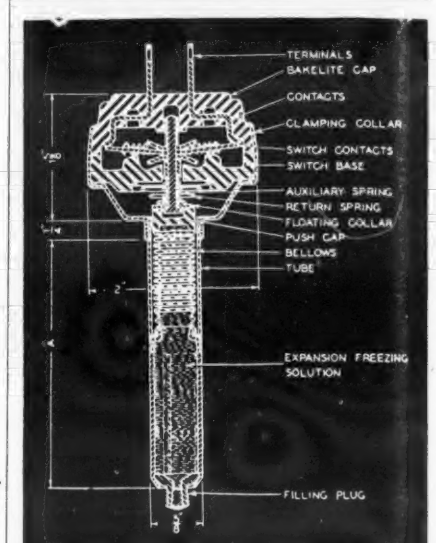
C P Refrigeration

Self-Contained Units from 500 pounds to 4 tons ice melting capacity. Ammonia or methyl chloride refrigerant.

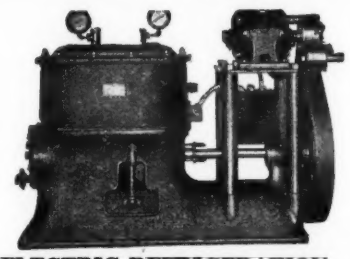
Over 30 years in the refrigerating machine business.

We invite the live wire dealer who seeks to build a permanent business to get in touch with us.

THE CREAMERY PACKAGE MFG. COMPANY
1243 West Washington Blvd. Chicago, Ill.



Ranco Thermostat Controls
have many points of superiority for Household Refrigerators, Ice Cream Cabinets, Water Coolers, Etc.
Write for information
THE AUTOMATIC RECLOSING CIRCUIT BREAKER COMPANY
COLUMBUS, OHIO, U. S. A



ELECTRIC REFRIGERATION DISTRIBUTORS and DEALERS

You need the PEERLESS line of commercial units.

PEERLESS units give you a COMPLETE line, ranging from 1 to 10 tons.

Sixteen years of successful manufacturing and merchandising of ice machines are behind the PEERLESS name. Our record warrants your most exacting investigation.

Write or Wire

PEERLESS ICE MACHINE CO.
515 W. 35th St.
CHICAGO, ILL.

FLINTLOCK CONDENSERS

Efficient — Economical
Compact

Greater Efficiency at Less Cost

WRITE FOR OUR BOOKLET

FLINTLOCK CORPORATION
4461 W. Jefferson Ave.
DETROIT, - - MICH.

Kelvinator Data Facilitates Specifying for Display Cases

Note—The following drawings, figures and descriptive material are taken from instruction sheets supplied to Kelvinator dealers and distributors by the commercial sales department of Kelvinator Corp., Detroit, and are reproduced here through the courtesy of that concern.

In order to simplify this discussion an illustration of each common type of case is given. Accompanying each example is a table of heat loads for that particular style of case.

Refrigerated counters both for display and storage purposes offer a very lucrative field for commercial refrigeration. Many different types of cases are now being used for varying purposes.

TOP DISPLAY

TABLE I

Total 24 hour load

TEMP DIFF.	6 Ft. Double Glass	6 Ft. Triple Glass	8 Ft. Double Glass	8 Ft. Triple Glass	10 Ft. Double Glass	10 Ft. Triple Glass	12 Ft. Double Glass	12 Ft. Triple Glass	14 Ft. Double Glass	14 Ft. Triple Glass	16 Ft. Double Glass	16 Ft. Triple Glass
40 Degrees	16800	13680	22080	17920	27360	22160	32640	26400	37920	30640	43200	34880
50 Degrees	21000	17100	27600	22400	34200	27700	40800	33000	47400	38300	54000	43600
60 Degrees	25200	20520	33120	26880	41040	33240	48960	39600	56880	45960	64800	52320

Total load on cases per 24 hours, includes average usage, but does not include any electric lights, based on assumption that case will have 1½-in. corkboard in the insulated wall and glass as indicated in the table.

Single glass cases of this type have not been included in the table due to the high conductivity of single glass and to the uncertainty of general construction of these cases. In general we do not recommend attempting to refrigerate single glass cases.

FREEZER COUNTER AND REFRIGERATION DISPLAY CASES

When equipment is sold in top display cases it should be remembered that it is practically impossible to obtain low temperatures much above the height of cooling element. In no instance should anything lower than 45 degrees be promised to a prospect. Where the attempt is made to refrigerate a single glass case nothing lower than 50 to 55 degrees should be offered to the purchaser.

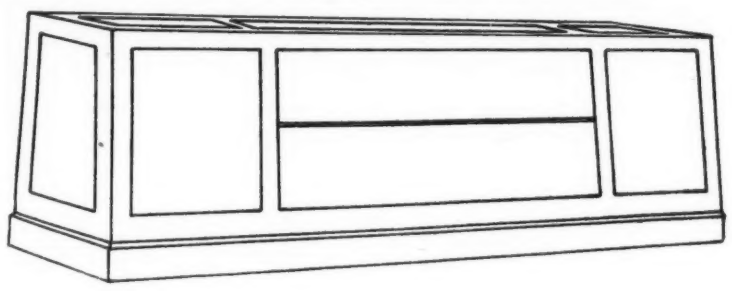


TABLE II

Total 24 hour load

TEMP DIFF.	6 Ft. 2" Cork	6 Ft. 3" Cork	8 Ft. 2" Cork	8 Ft. 3" Cork	10 Ft. 2" Cork	10 Ft. 3" Cork	12 Ft. 2" Cork	12 Ft. 3" Cork	14 Ft. 2" Cork	14 Ft. 3" Cork	16 Ft. 2" Cork	16 Ft. 3" Cork
40 Degrees	17800	15816	23000	20536	28208	25256	33408	29976	38608	34696	43808	39416
50 Degrees	22260	19770	28760	25670	35260	31570	41760	37470	48260	43370	54760	49270
60 Degrees	26712	23724	34512	30804	42312	37884	50112	44964	57912	52044	65712	59124

Table 2 shows 24-hour load on freezer counter and includes average usage but does not include electric lights, based on the assumption that case has triple glass throughout and corkboard insulation as indicated in Table 2.

DISPLAY CASE WITH TOP LOCATION OF COOLING ELEMENT

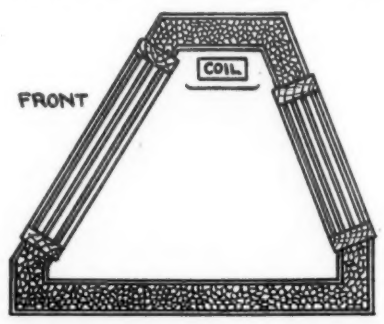


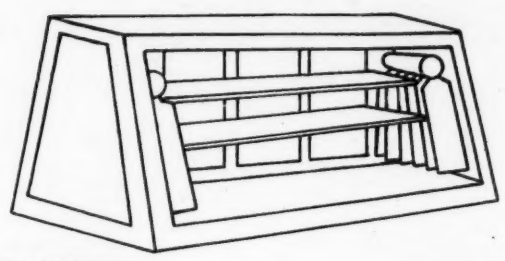
TABLE III

Total 24 hour load

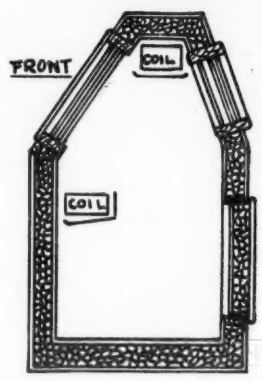
TEMP. DIFF.	6 Ft. Triple Glass	8 Ft. Triple Glass	10 Ft. Triple Glass	12 Ft. Triple Glass	14 Ft. Triple Glass	16 Ft. Triple Glass
40 Degrees	10800	14160	17520	20880	24240	27600
50 Degrees	13500	17700	21900	26100	30300	34500
60 Degrees	16200	21240	26280	31320	36360	41400

Total load on case based on the assumption that it is insulated with 3 inches of corkboard and including average usage but not including any electric lights.

FULL DISPLAY



DUPLEX COUNTER



COMBINATION DISPLAY AND STORAGE CASE

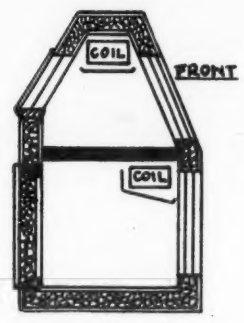


TABLE IV

Total 24 hour load

TEMP. DIFF.	6 Ft. Double Glass	6 Ft. Triple Glass	8 Ft. Double Glass	8 Ft. Triple Glass	10 Ft. Double Glass	10 Ft. Triple Glass	12 Ft. Double Glass	12 Ft. Triple Glass	14 Ft. Double Glass	14 Ft. Triple Glass	16 Ft. Double Glass	16 Ft. Triple Glass
40 Degrees	21936	17136	28816	22416	35696	27696	42576	32976	49456	38256	56336	43536
50 Degrees	27420	21420	36020	28020	44620	34620	53220	41220	61820	47820	70420	54420
60 Degrees	32904	25704	43224	33624	53544	41544	63864	49464	74184	57384	84504	65304

Total load on case includes average usage but does not include any electric lights and is based on 3 inches of corkboard in insulated wall.

1928 SHOWS OVER A MILLION ADDED LIGHT CUSTOMERS

Total Domestic Customers Is Given as 19,012,664

The number of domestic lighting customers on the power lines of central station companies at the end of 1928 shows an increase of 1,057,720 over the same figure for 1927 according to figures appearing in *Electrical World*. Comparative figures for the two years, divided geographically, follow:

	1927	1928
United States	17,954,944	19,012,664
New England	1,650,458	1,742,578
Middle Atlantic	5,127,456	5,522,476
East North Central	4,407,500	4,629,950
West North Central	1,789,975	1,851,675
South Atlantic	1,235,085	1,308,765
East South Central	521,830	558,620
West South Central	881,780	954,920
Mountain	483,960	501,430
Pacific	1,856,900	1,942,250
New Engzland:		
Maine	131,802	135,132
New Hampshire	91,600	96,420
Vermont	59,640	62,150
Massachusetts	889,206	945,096
Rhode Island	145,330	150,990
Connecticut	332,880	352,790
Middle Atlantic:		
New York	2,760,956	2,977,426
New Jersey	807,300	872,050
Pennsylvania	1,559,200	1,673,000
East North Central:		
Ohio	1,194,300	1,273,330
Indiana	515,600	532,520
Illinois	1,451,200	1,501,450
Michigan	814,100	866,610
Wisconsin	432,300	456,040
West North Central:		
Minnesota	384,750	393,440
Iowa	328,200	334,800
Missouri	541,500	565,250
North Dakota	54,225	55,125
South Dakota	53,900	55,940
Nebraska	169,000	178,520
Kansas	258,400	268,600
South Atlantic:		
Delaware	26,430	28,830
Maryland	233,790	251,290
Dist. of Columbia	95,795	101,595
Virginia	185,720	199,520
West Virginia	121,000	130,450
North Carolina	161,100	171,750
South Carolina	89,700	94,800
Georgia	135,600	146,120
Florida	185,950	184,410
Eats South Central:		
Kentucky	181,300	194,040
Tennessee	164,100	172,750
Alabama	126,280	136,230
Mississippi	50,150	55,600
West South Central:		
Arkansas	91,380	97,150
Louisiana	104,300	109,460
Oklahoma	194,200	211,160
Texas	491,900	537,150
Mountain:		
Montana	67,120	71,070
Idaho	63,500	64,180
Wyoming	30,200	30,830
Colorado	153,500	160,250
New Mexico	22,540	23,890
Arizona	35,700	37,990
Utah	99,050	100,830
Nevada	12,350	12,390
Pacific:		
Washington	332,600	339,700
Oregon	197,700	204,650
California	1,326,600	1,397,900

DIRECTORY

Additions and Corrections to Listings of Companies in Jan. 2 Issue

CALIFORNIA ELECTRIC REFRIGERATORS
Fifth and Dwight Way, Berkeley, Cal.
Trade name—CALECTRO FROST.
Mfrs. of electric refrigeration systems.

DALLAS BRASS & COPPER CO.
Division of Republic Brass Corp.
820 Orleans St., Chicago, Ill.
Mfrs. of copper and brass sheets and tubing. Complete ice trays and stampings.

HARFORD ENGINEERING AND MACHINE CO.
Aberdeen, Md.
H. H. Nesbitt, pres.; O. D. Nesbitt, vice pres.; H. H. Nesbitt, gen. mgr.; M. C. Cook, secy., treas.; John Di Eugenio, chief engr., prod. mgr.
Trade name—EVER-KOLD.
High Side
Compressor—reciprocating.
Drive—direct.
Seal—bellows.
Refrigerant—sulphur dioxide.
No of standard sizes—1.
Motor—⅛ h.p.
Condenser—plain tube.
Method of cooling—air.
Control—pressure.
Low Side
Flooded system.
Method of cooling—direct.
Float valve—low side.
No. of standard sizes—1.
Freezing trays—2 to 48.

MITCHELL PATTERN WORKS
2725 Newark, Detroit, Mich.
Mfrs. of wood and metal patterns.

PARKER ICE MACHINE CO.
943-47 Third St., San Bernardino, Calif.
W. M. Parker, pres.; H. C. Parker, gen. mgr., secy., treas.; G. E. Tabor, sales mgr.; R. C. Martin, chief engr.; Frank Rose, prod. mgr.; E. F. Hill, pur. agt.
Trade name—PARKER.
Compressor—reciprocating. *Drive*—belt.
Seal—sylphon. *Refrigerant*—sulphur dioxide.
No. of standard sizes—3.
Motor—1-3 to 2 h.p. *Make*—Century.
Condenser—radiator.
Method of cooling—air and water.
Control—pressure. *Make*—Penn.
Capacities (ice melting)—100 to 1000 lbs.
Low Side
Dry and flooded system.
Method of cooling—direct and indirect.
Expansion valve—diaphragm.
Make—American Radiator.
Float valve—high side.
Capacity range—4 to 1,000 cu. ft., 25 to 500 lbs. ice melting.
Freezing trays—1 to 9.

FOR SALE

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F. A. Eustis, Secretary 131 State St., BOSTON 2 Rector St., NEW YORK

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